MASTERPACT NW08-63

Low Voltage Products

User manual

Schneider Electric

User manual for circuit breakers

Masterpact NW08-63

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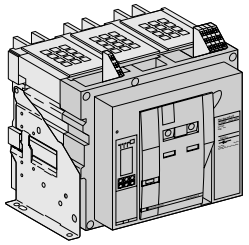
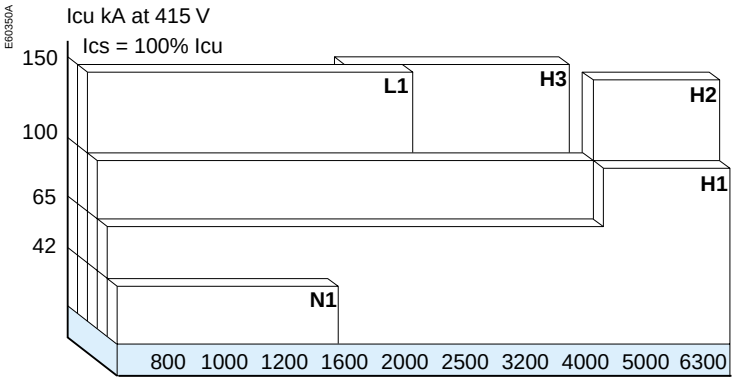
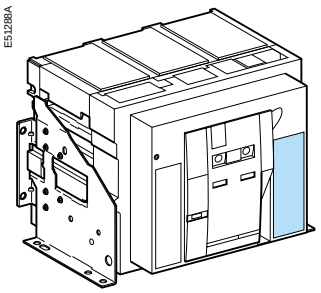
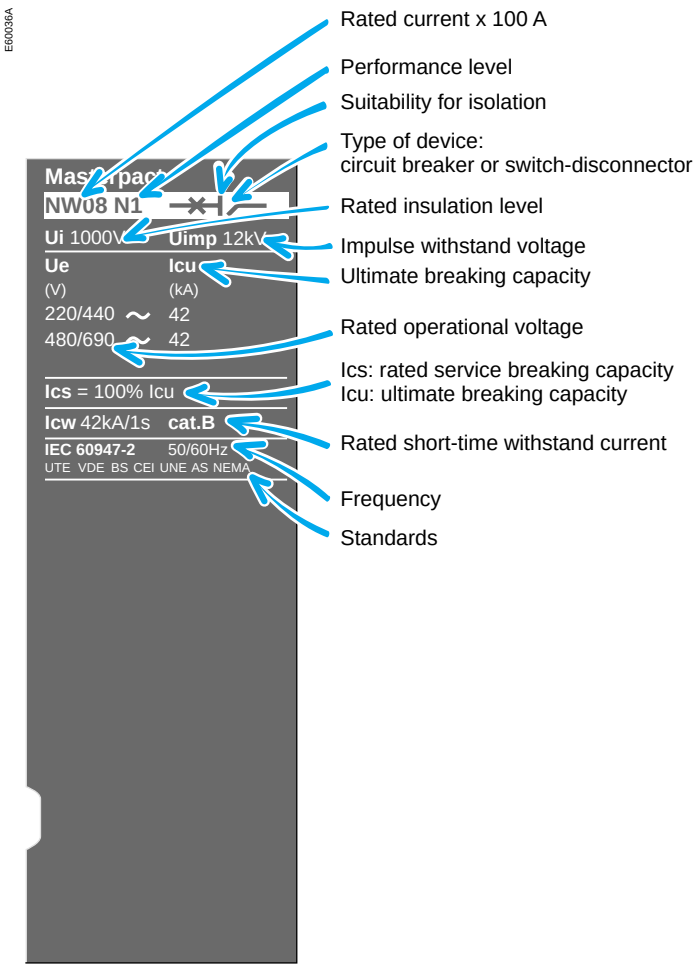


The Masterpact NW range of circuit breakers and switch-disconnectors offer current ratings from 800 A to 6300 A.
Five different performance levels are available:
- N1: standard with total discrimination
- H1: high performance with total discrimination
- H2: a compromise between current limiting and discrimination
- H3: high breaking capacity and discrimination, without current limiting
- L1: high level of current limiting, with some discrimination.





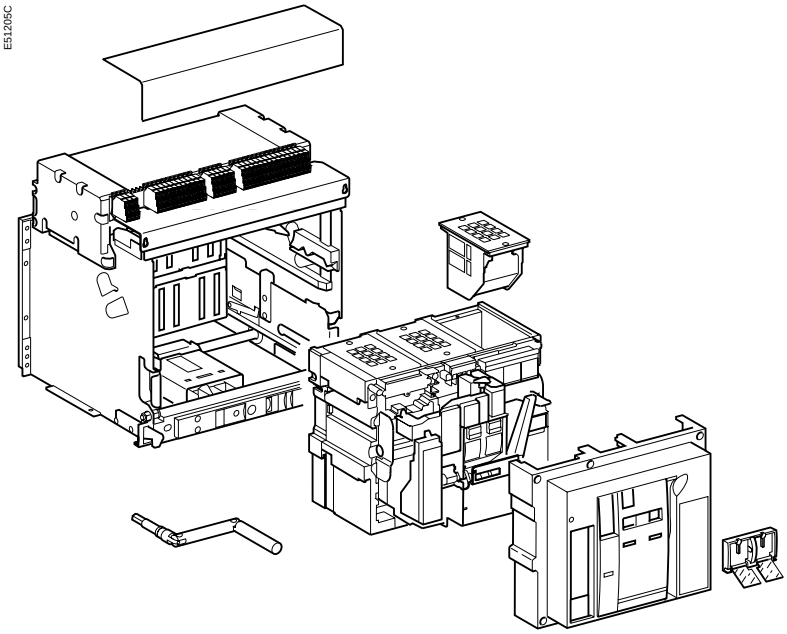
Rating plate



Masterpact circuit breakers are available in drawout and fixed versions.
The drawout version is mounted on a chassis and the fixed version is installed using fixing brackets

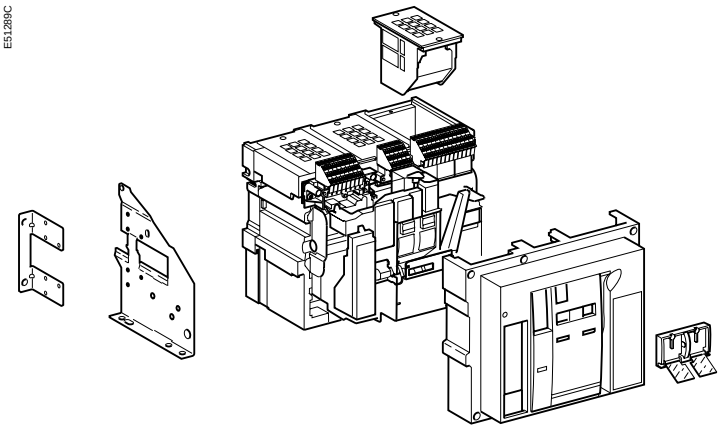
Drawout version

E51205C



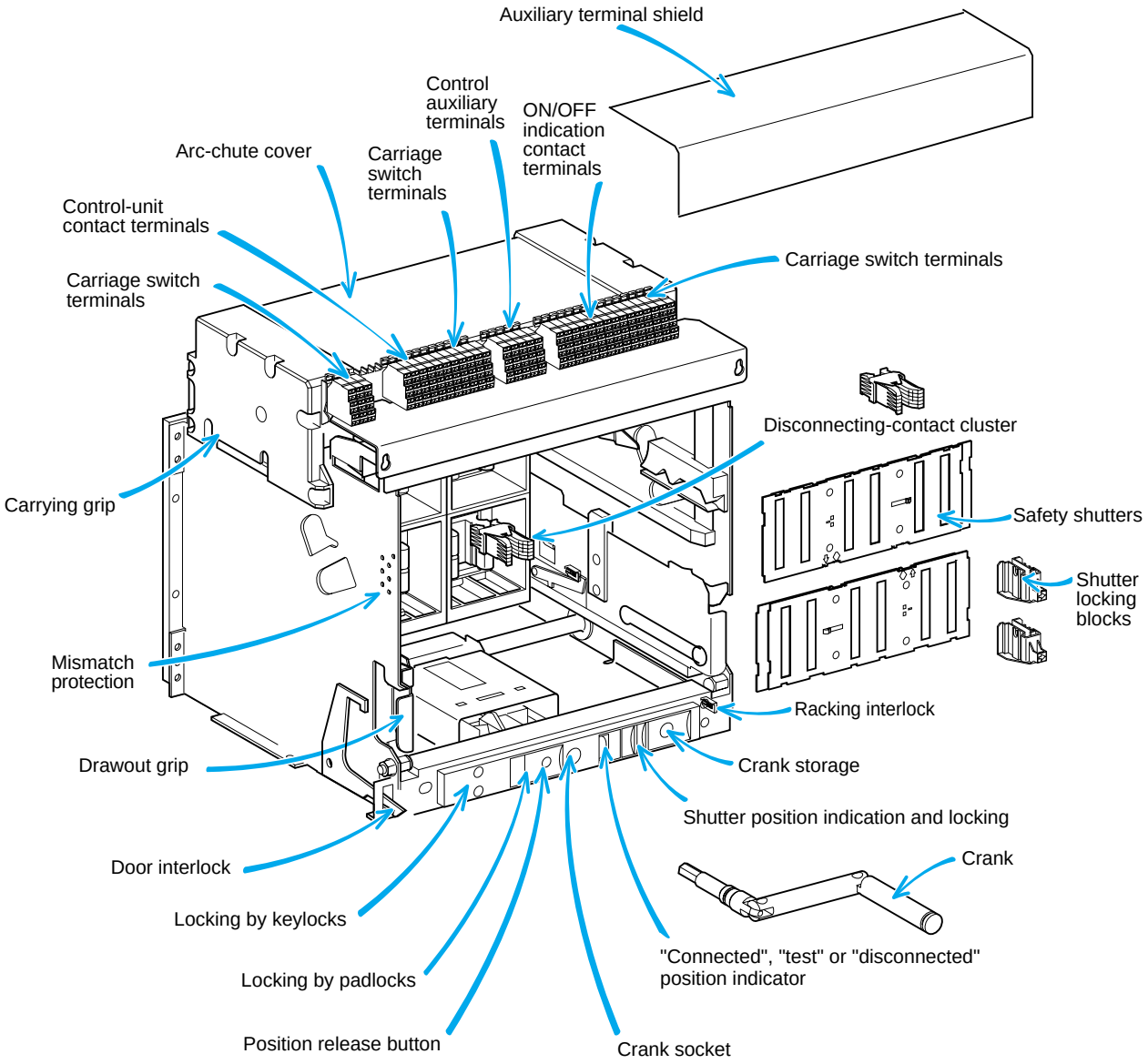
Fixed version

E51289C



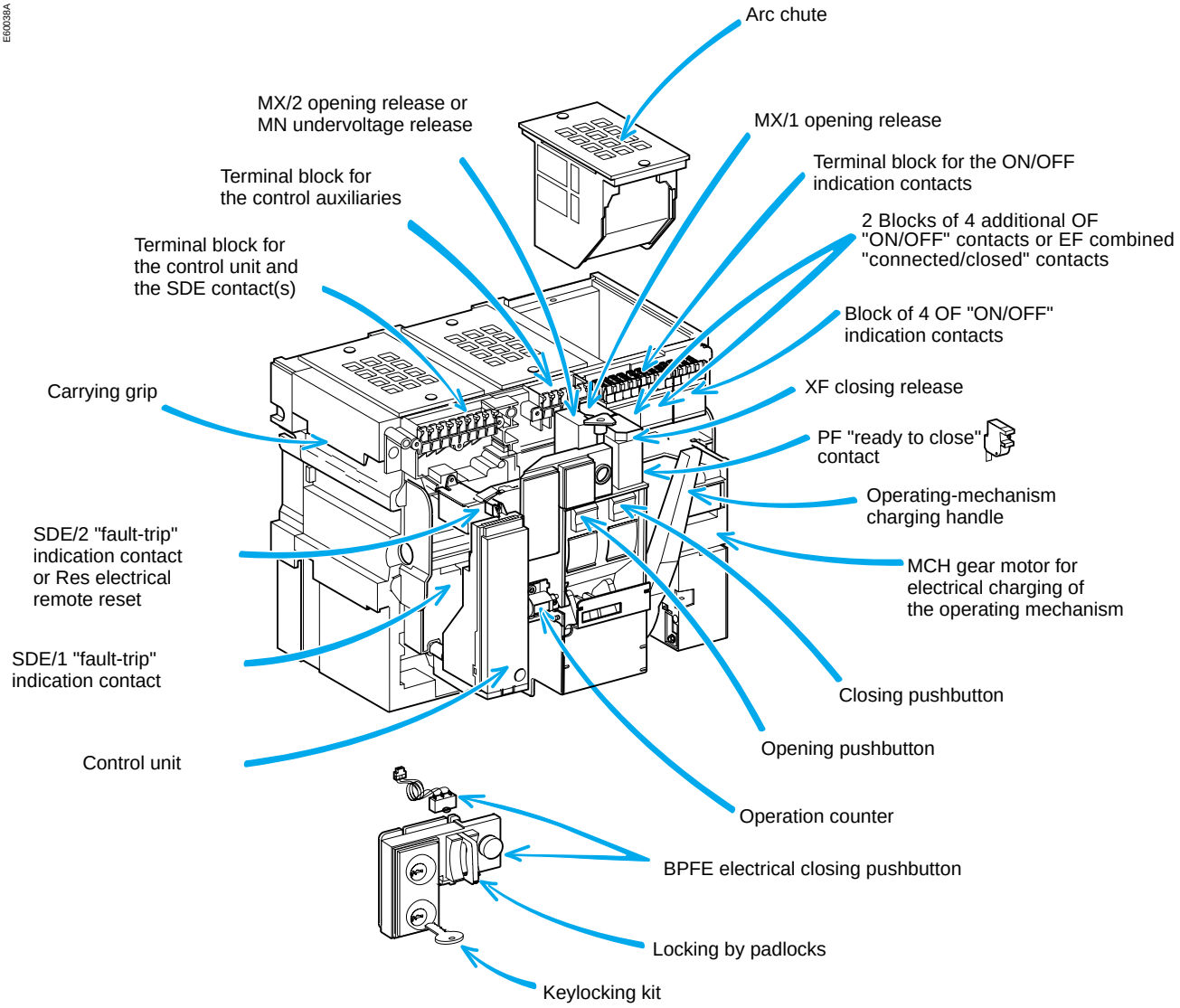
Chassis

E60037A



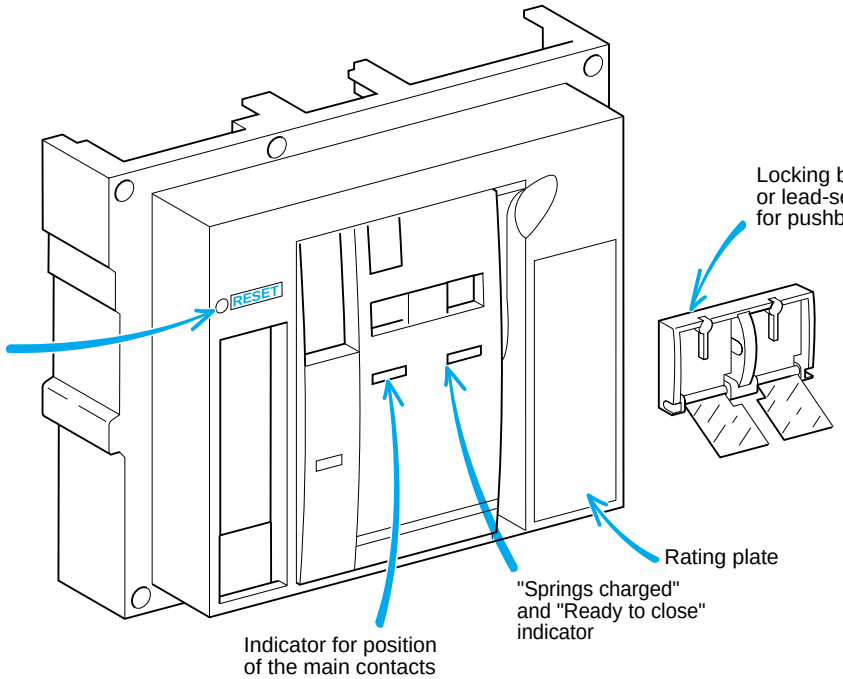
Circuit breaker / switch-disconnector

E60038A



Front

E60039A



Trip indication button
used to reset before closing

Locking by padlock
or lead-seal cover
for pushbuttons

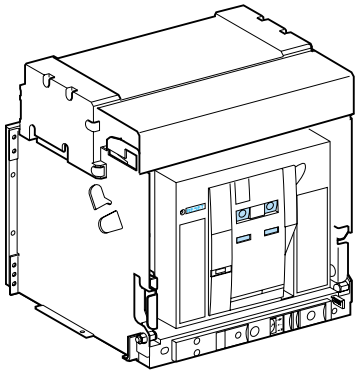
Rating plate

"Springs charged"
and "Ready to close"
indicator

Indicator for position
of the main contacts

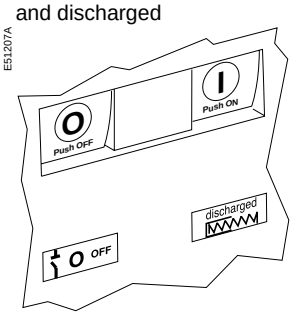
Understanding the controls and indications

E51320B



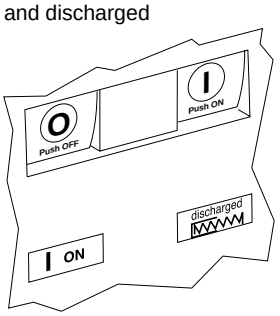
Circuit breaker open and discharged

E51207A



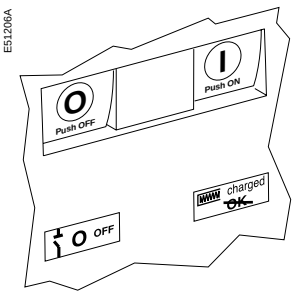
Circuit breaker closed and discharged

E51210A



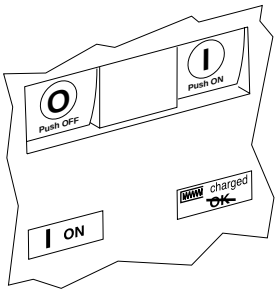
Circuit breaker open, charged and not "ready to close"

E51206A



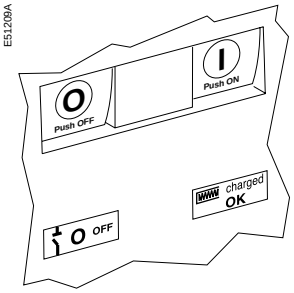
Circuit breaker closed, charged and not "ready to close"

E51211



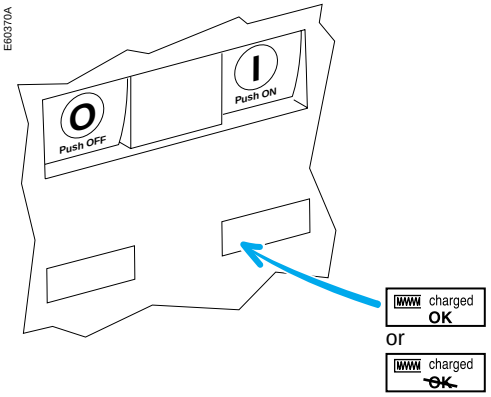
Circuit breaker open, charged and "ready to close"

E51209A



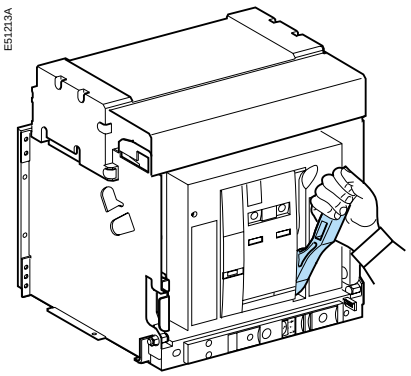
Charging the circuit breaker

The charge status is indicated as follows.

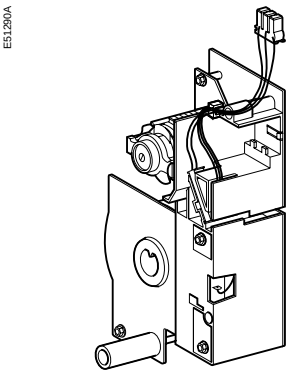


The springs in the circuit breaker operating mechanism must be charged to store the energy required to close the main contacts. The springs may be charged manually using the charging handle or the optional MCH gear motor.

Manual charging:
Pull the handle down seven times until you hear a "clack".



Automatic charging:
If the MCH gear motor is installed, the spring is automatically recharged after each closing.



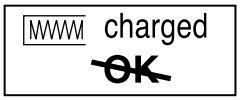
Closing the circuit breaker

Device "ready to close"

E51291A

Device not "ready to close"

E51292A



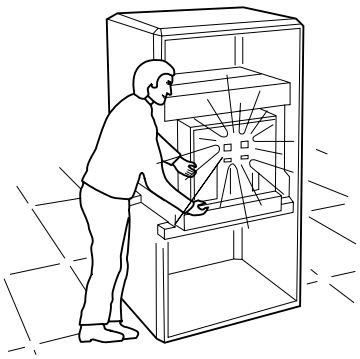
Closing conditions

Closing (i.e. turning the circuit ON) is possible only if the circuit breaker is "ready to close".
The prerequisites are the following:
- device open (OFF)
- springs charged
- no opening order present.

If the circuit breaker is not "ready to close" when the order is given, stop the order and start again when the circuit breaker is "ready to close".

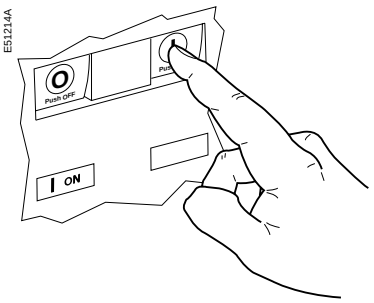
Closing the circuit breaker

E51216A



Locally (mechanical)
Press the mechanical ON pushbutton.

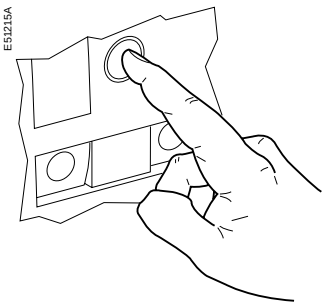
E51214A



Locally (electrical)

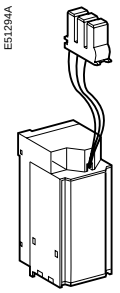
BPFE

E51215A



XF

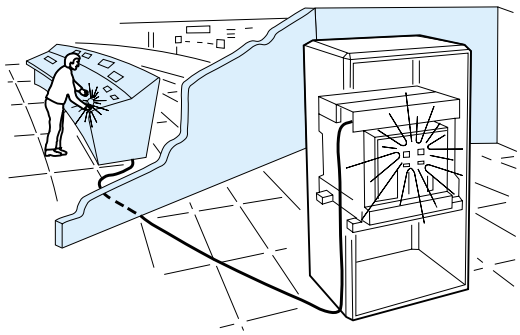
E51294A



Press the electrical closing pushbutton. By adding an XF closing release, the circuit breaker can be closed remotely.

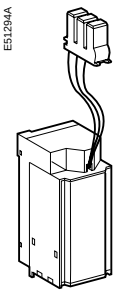
Remotely

E51293A



XF

E51294A



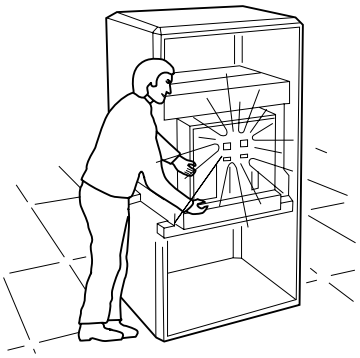
When connected to a remote control panel, the XF closing release (0.85 to 1.1 Un) can be used to close the circuit breaker remotely.

Enabling or disabling the anti-pumping function

The purpose of the mechanical anti-pumping function is to ensure that a circuit breaker receiving simultaneous opening and closing orders does not open and close indefinitely.
If there is a continuous closing order, after opening the circuit breaker remains open until the closing order is discontinued. A new closing order then closes the circuit breaker. This function can be disabled by wiring the closing release in series with the PF "ready to close" contact.

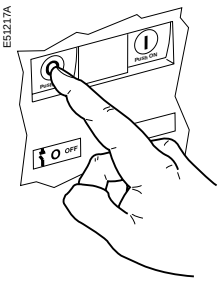
Opening the circuit breaker

E51216A

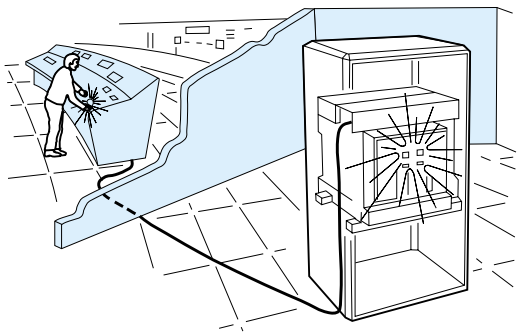


Locally
Press the OFF pushbutton.

E51217A



E51293A

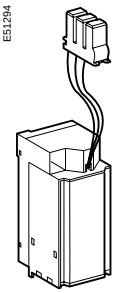


Remotely
Use one of the following solutions:
- one or two MX opening releases (MX1 and MX2, 0.7 to 1.1 Un)
- one MN undervoltage release (0.35 to 0.7 Un)
- one MN undervoltage release (0.35 to 0.7 Un) with a delay unit (R or Rr).

When connected to a remote control panel, these releases can be used to open the circuit breaker remotely.

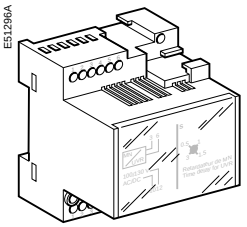
MX1, MX2, MN

E51294



Delay unit

E51296A

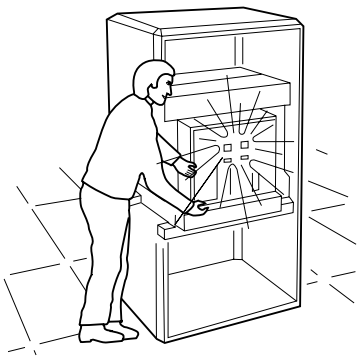


Resetting after a fault trip

The circuit breaker signals a fault by:
- a mechanical indicator on the front panel
- one or two SDE "fault-trip" indication contacts (SDE/2 is optional).

Locally
If the circuit breaker is not equipped with the automatic reset option, reset it manually.

E51216A



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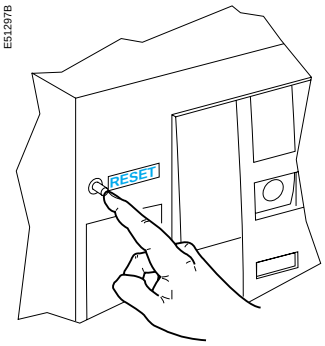

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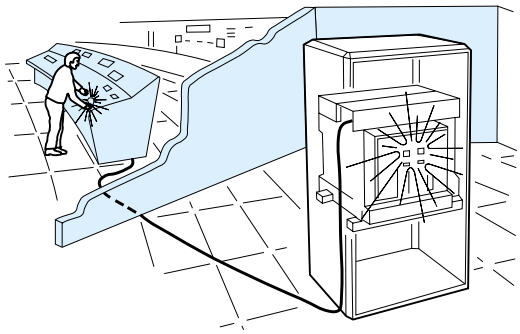
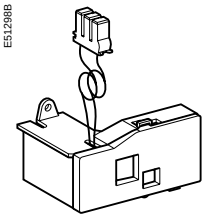
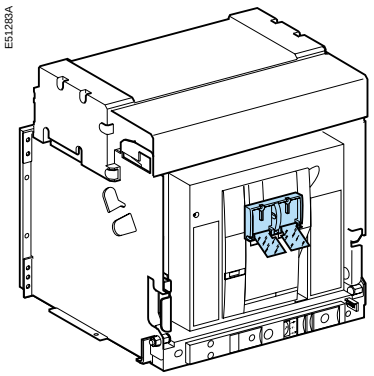


Remotely
Use the Res electrical remote reset option (not compatible with an SDE/2).

E51298B

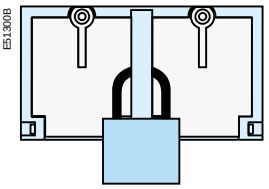


Locking the controls
Disabling circuit-breaker local closing and opening

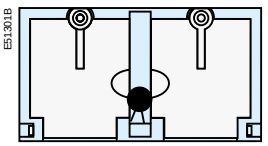


Pushbutton locking using a padlock (shackle diameter 5 to 8 mm), a lead seal or screws.

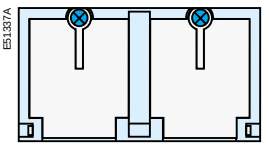
Padlock



Lead seal

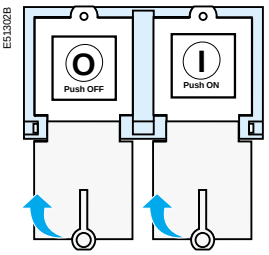


Screws

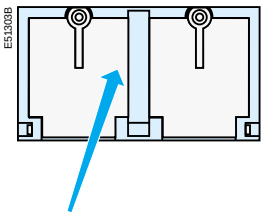


Locking

Close the covers.

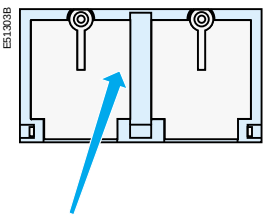


Insert the padlock shackle, lead seal or screws.

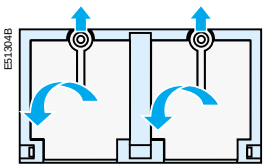


Unlocking

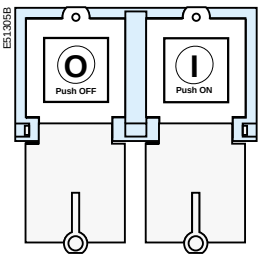
Remove the padlock, lead seal or screws.



Lift the covers and swing them down.



The pushbuttons are no longer locked.



Locking the controls
Disabling local and remote closing

Combination of locking systems

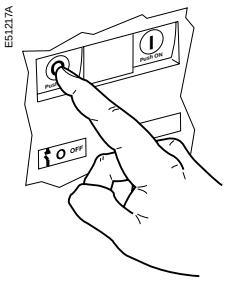
To disable circuit-breaker closing using the pushbuttons or remotely, use as needed:

- a padlock
- one or two keylocks
- a combination of the two locking systems.

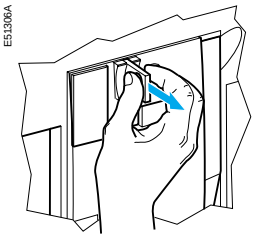
Install a padlock (maximum shackle diameter 5 to 8 mm)

Locking

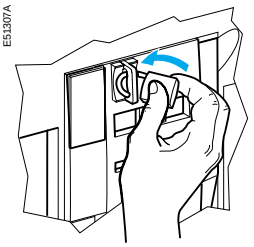
Open the circuit breaker.



Pull out the tab.

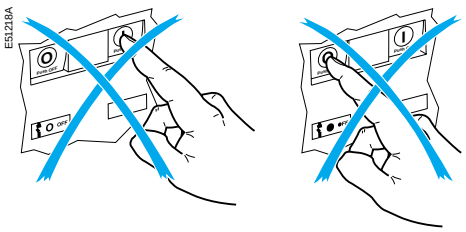


Insert the padlock shackle.



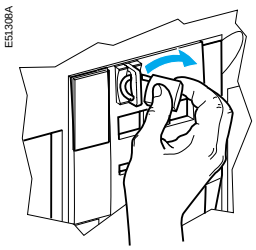
Check

The controls are inoperative.



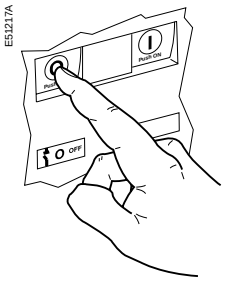
Unlocking

Remove the padlock.

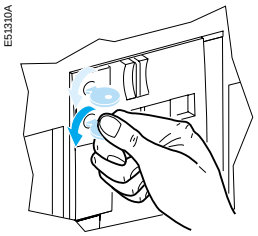


Locking the controls with one or two keylocks

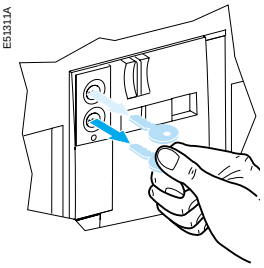
Locking
Open the circuit breaker.



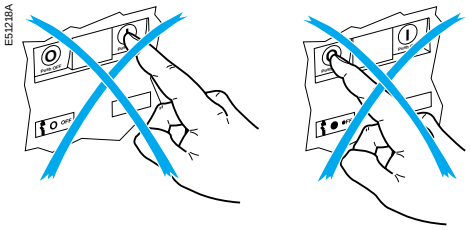
Turn the key(s).



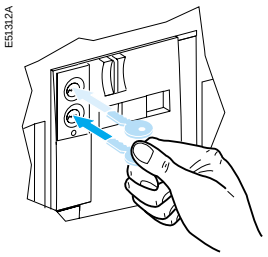
Remove the key(s).



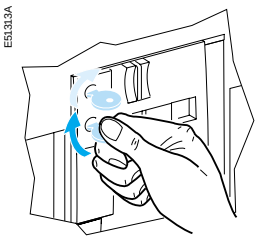
Check
The controls are inoperative.



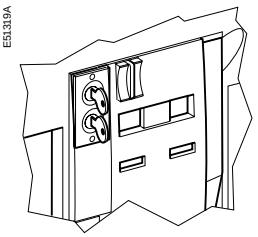
Unlocking
Insert the key(s).



Turn the key(s).

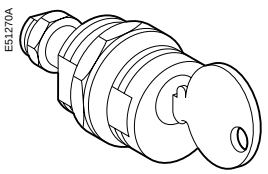


The key(s) cannot be removed.

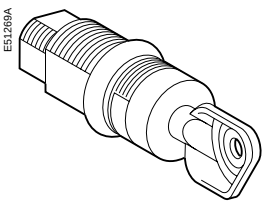


Four types of keylocks are available.

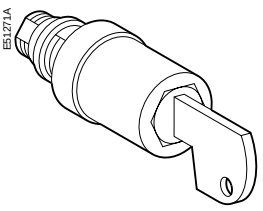
RONIS



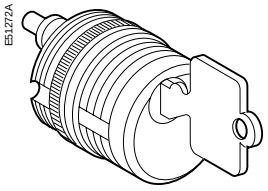
PROFALUX



CASTELL



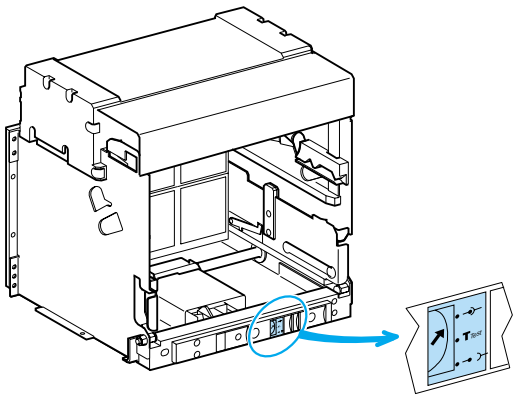
KIRK



Identifying the circuit breaker positions

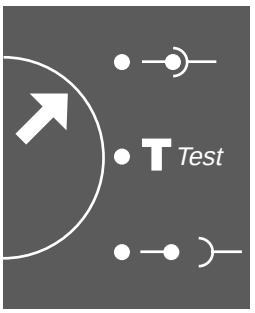
The indicator on the front signals the position of the circuit breaker in the chassis.

E51222A

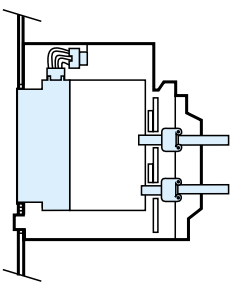


■ "connected" position

E51219A

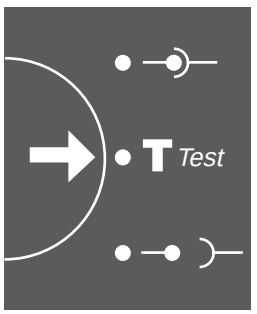


E51314A

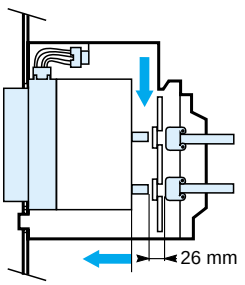


■ "test" position

E51220A

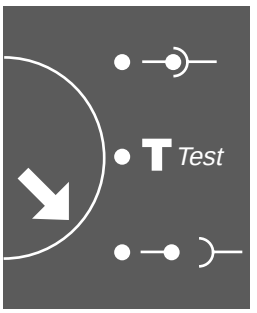


E51315A

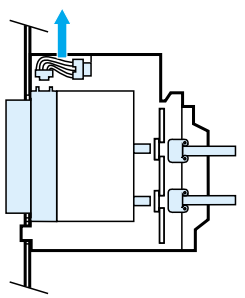


■ "disconnected" position

E51221A



E51316A



These operations require that all chassis-locking functions be disabled (see page 21).

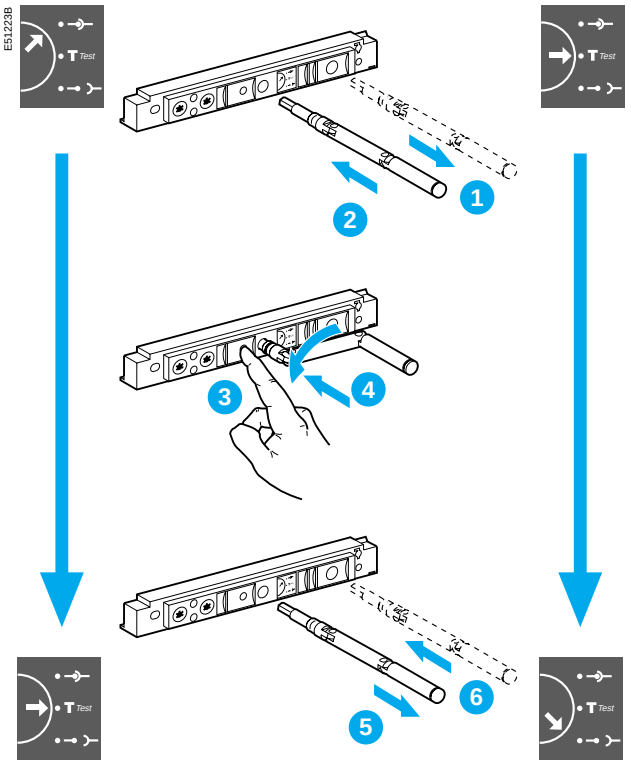
Prerequisites

To connect and disconnect Masterpact, the crank must be used. The locking systems, padlocks and the racking interlock all inhibit use of the crank.

Withdrawing the circuit breaker from the "connected" to "test" position, then to "disconnected" position

The circuit breaker is in "connected" position.

The circuit breaker is in "test" position.



The circuit breaker is in "test" position. Remove the crank or continue to "disconnected" position.

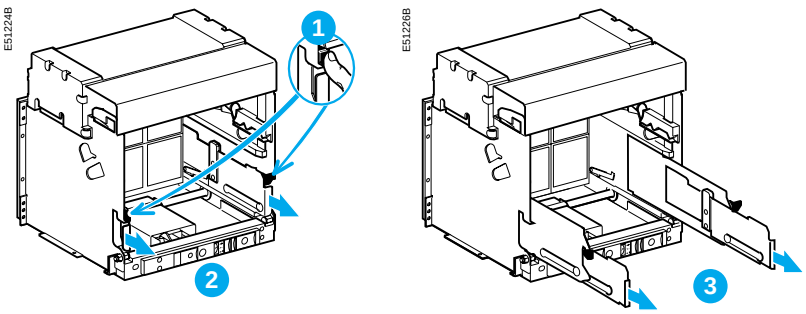
The circuit breaker is in "disconnected" position.

Caution. The right-hand rail cannot be removed if the crank has not been removed or if the circuit breaker is not fully disconnected.

Removing the rails

Press the release tabs and pull the rails out.

To put the rails back in, press the release tabs and push the rails in.



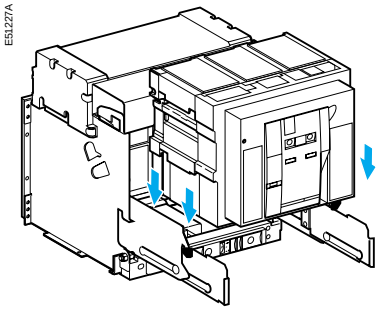
Racking

For complete information on Masterpact handling and mounting, see the installation manual(s).

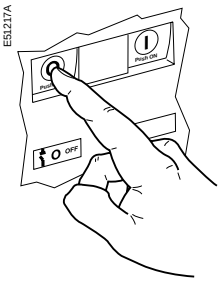
Before mounting the circuit breaker, make sure it matches the chassis.

Inserting Masterpact

Position the circuit breaker on the rails. Check that it rests on all four supports.

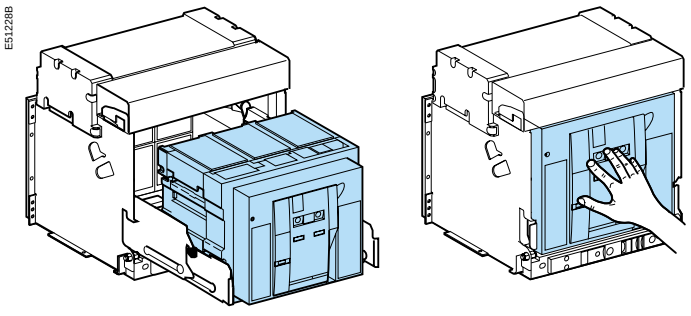


Open the circuit breaker (in any case, it opens automatically during connection).



Push the circuit breaker into the chassis, taking care not to push on the control unit.

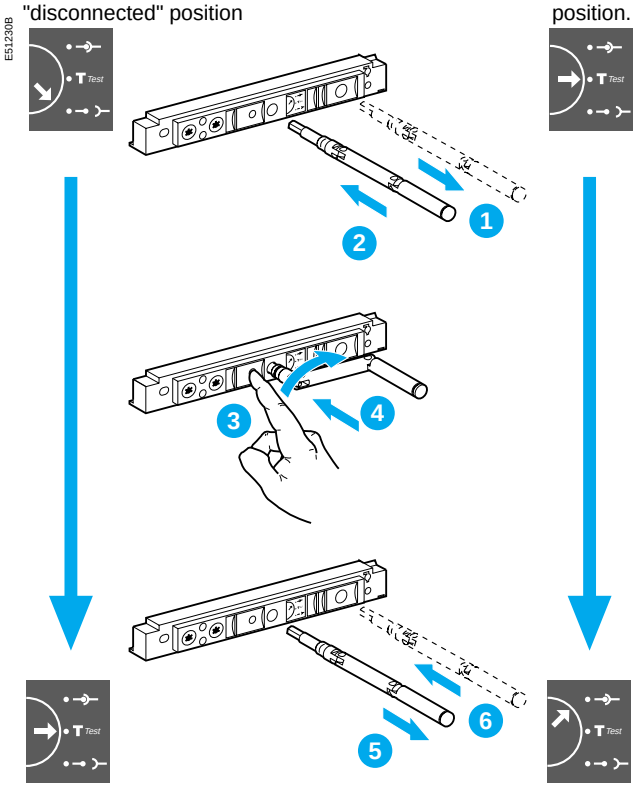
If you cannot insert the circuit breaker in the chassis, check that the mismatch protection on the chassis corresponds to that on the circuit breaker.



Racking the circuit breaker from the "disconnected" to "test" position, then to "connected" position

The device is in "disconnected" position

The device is in "test" position.



The device is in "test" position. Remove the crank or continue to "connected" position.

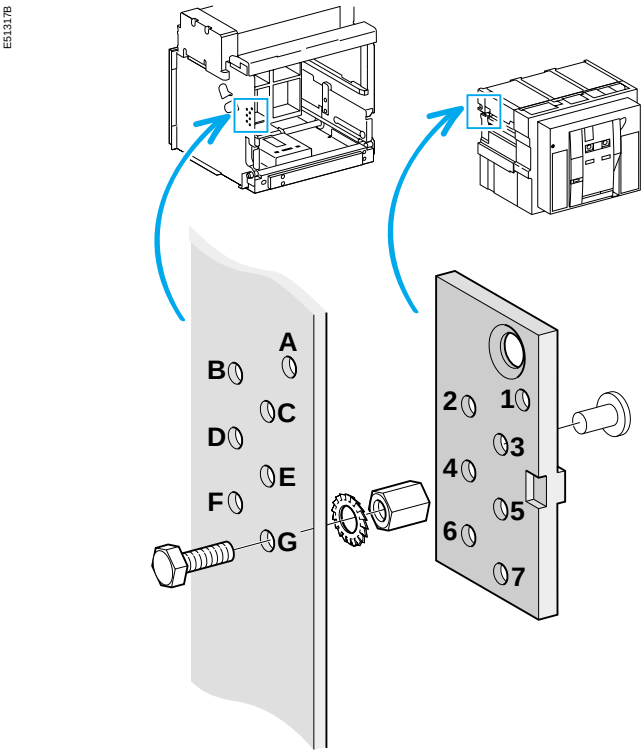
The device is in "connected" position.

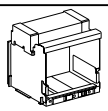
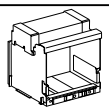
Matching a Masterpact circuit breaker with its chassis

To set up a mismatch-prevention combination for the circuit breaker and the chassis, see the mismatch-prevention installation manual.

The mismatch protection ensures that a circuit breaker is installed only in a chassis with compatible characteristics.

The possible combinations are listed below.

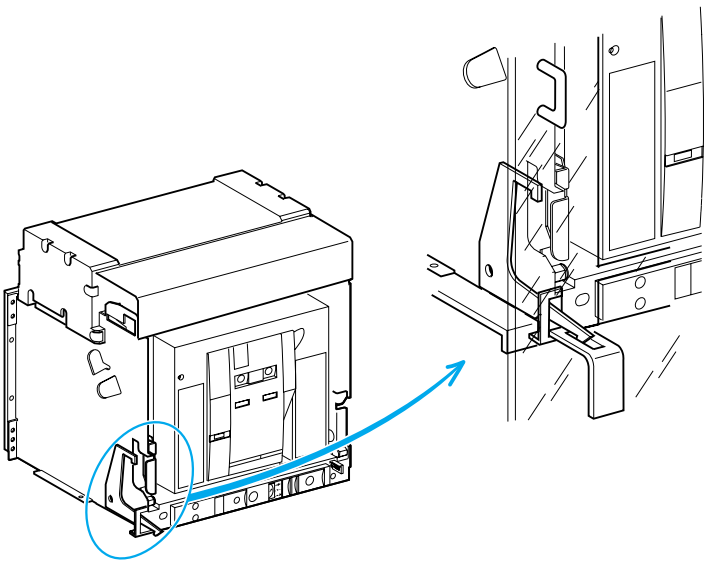


			
A B C D	5 6 7	B C D E	1 6 7
A B C E	4 6 7	B C D F	1 5 7
A B C F	4 5 7	B C D G	1 4 7
A B C G	4 5 6	B C E F	1 4 6
A B D E	3 6 7	B C E G	1 3 7
A B D F	3 5 7	B D E F	1 3 6
A B D G	3 5 6	B D E G	1 3 5
A B E F	3 4 7	B D F G	1 3 4
A B E G	3 4 6	C D E F	1 2 7
A B F G	3 4 5	C D E G	1 2 6
A C D E	2 6 7	C E F G	1 2 4
A C D F	2 5 7	D E F G	1 2 3
A C D G	2 5 6		
A C E F	2 4 7		
A C E G	2 4 6		
A C F G	2 4 5		
A D E F	2 3 7		
A D E G	2 3 6		
A D F G	2 3 5		
A E F G	2 3 4		

Locking the switchboard door

The locking device is installed on the left or right-hand side of the chassis:
■ when the circuit breaker is in "connected" or "test" position, the latch is lowered and the door is locked
■ when the circuit breaker is in "disconnected" position, the latch is raised and the door is unlocked.

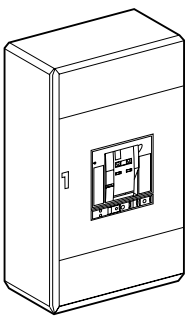
E51231B



Disabling door opening

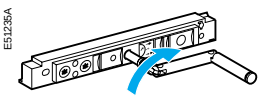
Close the door.

E51232A



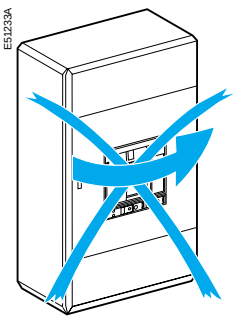
Put the Masterpact in "test" or "connected" position.

E51235A



The door is locked.

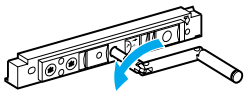
E51233A



Enabling door opening

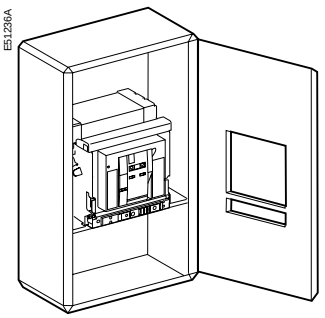
Put the Masterpact in "disconnected" position.

E51234A



The door is unlocked.

E51236A



Locking the circuit breaker in position

Padlocks and keylocks may be used together.

Combination of locking systems

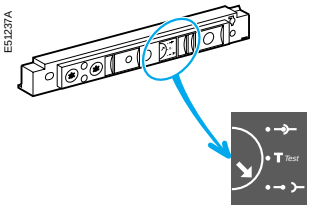
To disable local or remote opening or closing of the circuit breaker, use as needed:

- one to three padlocks
- one or two keylocks
- a combination of the two locking systems.

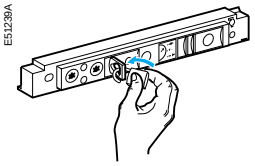
Disabling connection when the circuit breaker is in "disconnected" position, using one to three padlocks (maximum shackle diameter 5 to 8 mm)

Locking

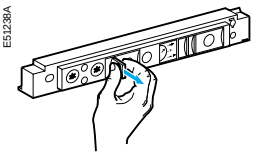
Circuit breaker in "disconnected" position.



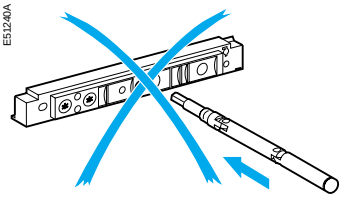
Insert the shackle (max. diameter 5 to 8 mm) of the padlock(s).



Pull out the tab.

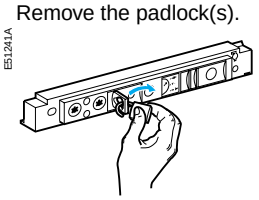


The crank cannot be inserted.

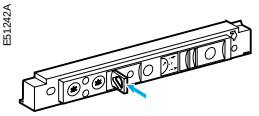


Unlocking.

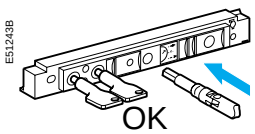
Remove the padlock(s).



Release the tab.



The crank can be inserted.



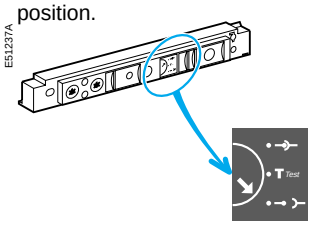
Locking the circuit breaker in position

Padlocks and keylocks may be used together.

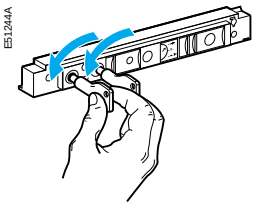
Disabling connection when the circuit breaker is in "disconnected" position, using one or two keylocks.

Locking

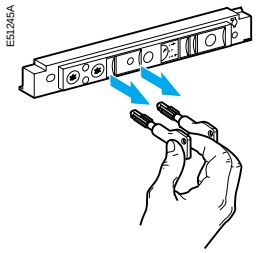
Circuit breaker in "disconnected" position.



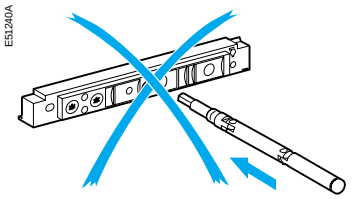
Turn the key(s).



Remove the key(s).

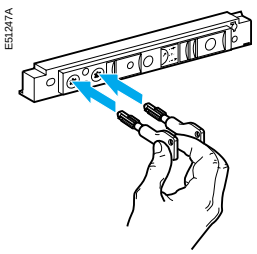


The crank cannot be inserted.

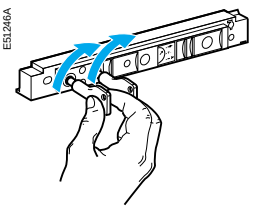


Unlocking

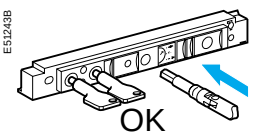
Insert the key(s).



Turn the key(s).

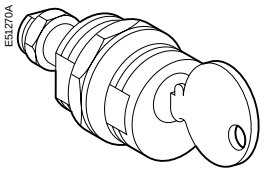


The crank can be inserted.

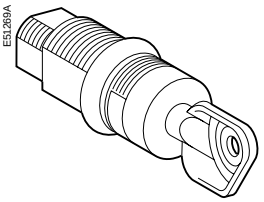


Four types of keylocks are available

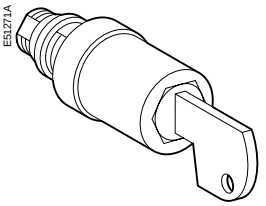
RONIS



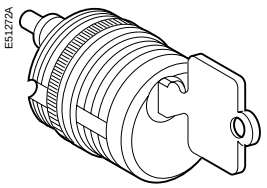
PROFALUX



CASTELL



KIRK

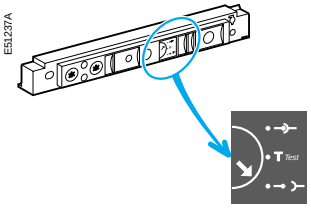


For this operation, the circuit breaker must be removed from the chassis.

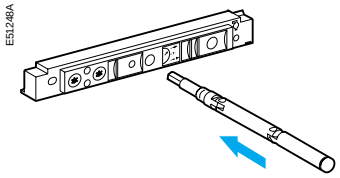
Disabling use of the crank in all positions

It is possible to modify the padlock and keylock locking function. Instead of locking only in "disconnected" position, it is possible to lock the circuit breaker in all positions.

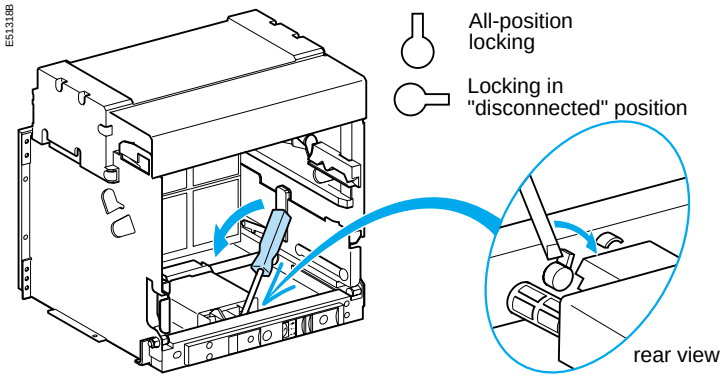
Set the circuit breaker to "disconnected" position. Remove the circuit breaker from the chassis.



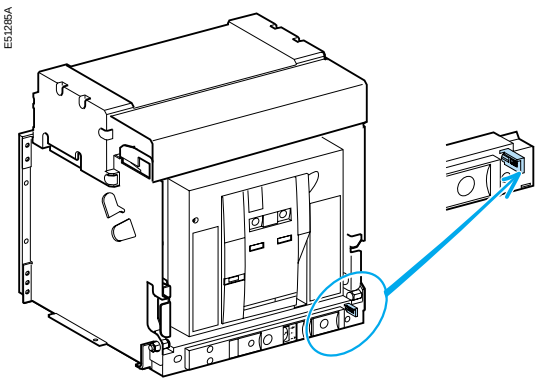
Insert the crank.



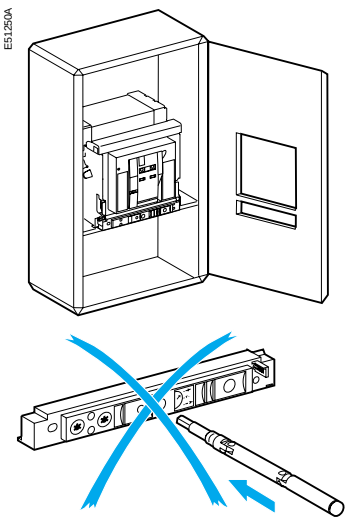
Turn the catch to the left. The circuit breaker can now be locked in all positions.



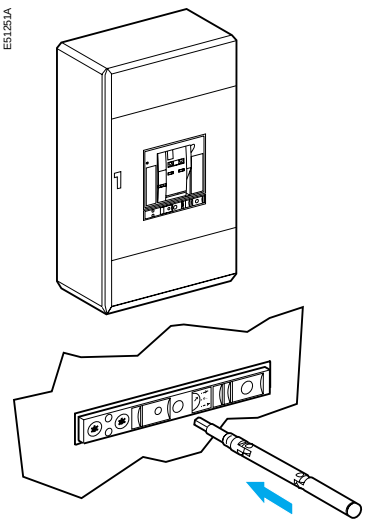
Locking the circuit breaker when the door is open



When the door is open, the crank cannot be inserted.



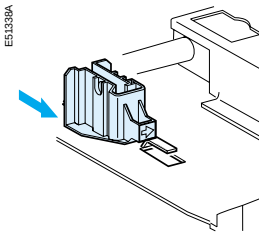
When the door is closed, the crank can be inserted.



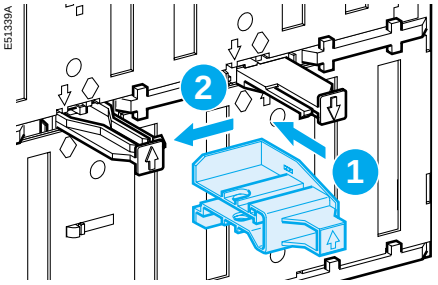
Locking the safety shutters
Padlocking inside the chassis

Using the shutter locking blocks

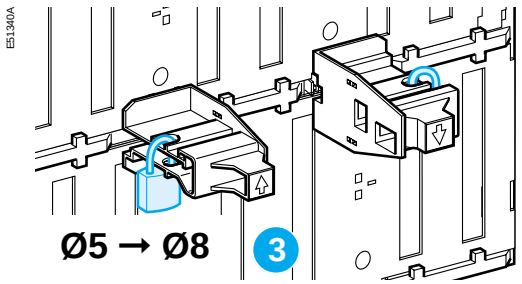
Remove the block(s) from their storage position.



Position the block(s) on the guide(s).

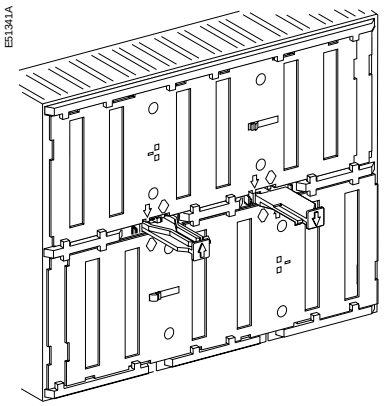


Lock the block(s) using a padlock.

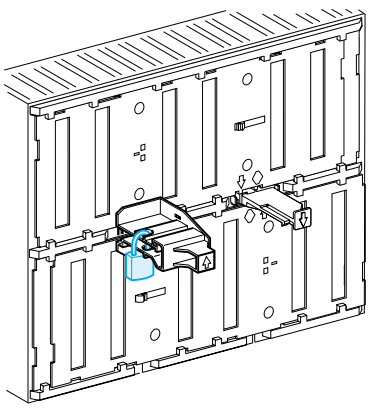


Four locking possibilities

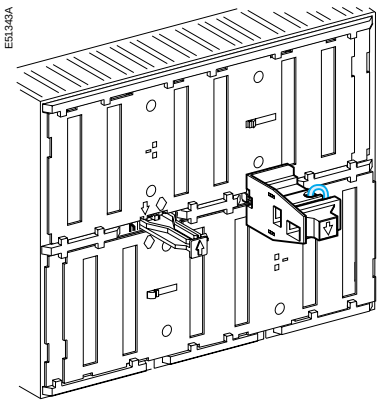
Top and bottom shutters not locked.



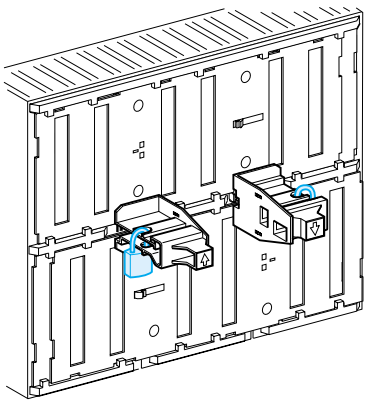
Top shutter locked, Bottom shutter not locked.



Top shutter not locked, Bottom shutter locked.

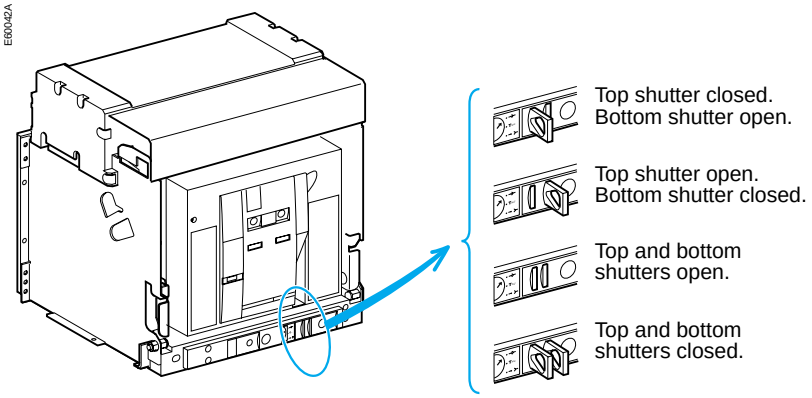


Top and bottom shutters locked.



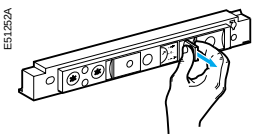
Padlocking or position indication on the front

This system offers two functions:
- *padlocking of the top or bottom shutters*
- *indication of the position of each shutter:*
  - *shutter open*
  - *shutter closed.*

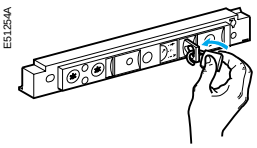


Locking

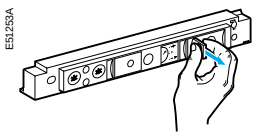
Pull out the left-hand tab to lock the top shutter.



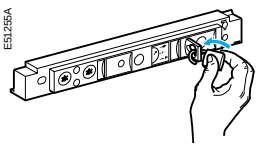
Insert a padlock (shackle 5 to 8 mm).



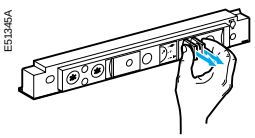
Pull out the right-hand tab to lock the bottom shutter.



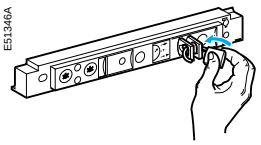
Insert a padlock (shackle 5 to 8 mm).



Pull out both tabs to lock both shutters.

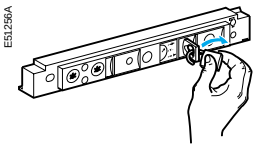


Insert a padlock (shackle 5 to 8 mm).

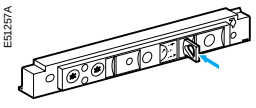


Unlocking

Remove the padlock.

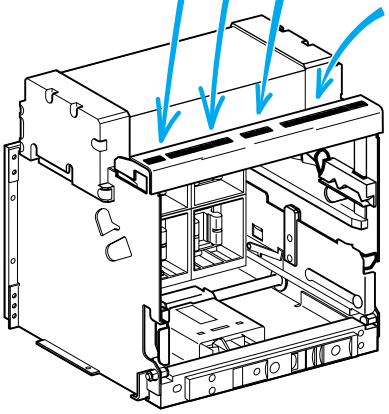


Release the tab(s).



Identification of the connection terminals
Layout of terminal blocks

E60352A



CD3	CD2	CD1
834	824	814
832	822	812
831	821	811

or

CE6	CE5	CE4
364	354	344
362	352	342
361	351	341

Com		UC1		UC2		UC3	UC4	M2C/M6C	SDE2/Res.	SDE1	CE3	CE2	CE1
E5	E6	Z5	M1	M2	M3	F2 +	V3	484/Q3	184/K2	84	334	324	314
E3	E4	Z3	Z4	T3	T4	VN	V2	474/Q2	182	82	332	322	312
E1	E2	Z1	Z2	T1	T2	F1 -	V1	471/Q1	181/K1	81	331	321	311

MN/MX2	MX1	XF	PF	MCH
D2/C12	C2	A2	254	B2
/C13	C3	A3	252	B3
D1/C11	C1	A1	251	B1

OF24	OF23	OF22	OF21	OF14	OF13	OF12	OF11	OF4	OF3	OF2	OF1	CT3	CT2	CT1
244	234	224	214	144	134	124	114	44	34	24	14	934	924	914
242	232	222	212	142	132	122	112	42	32	22	12	932	922	912
241	231	221	211	141	131	121	111	41	31	21	11	931	921	911

or

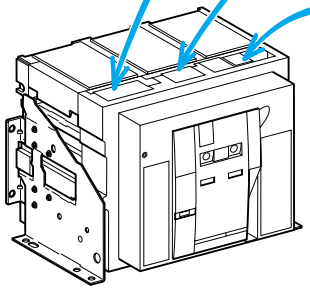
EF24	EF23	EF22	EF21	EF14	EF13	EF12	EF11
248	238	228	218	148	138	128	118
246	236	226	216	146	136	126	116
245	235	225	215	145	135	125	115

or

CE9	CE8	CE7
394	384	374
392	382	372
391	381	371

or

CD6	CD5	CD4
864	854	844
862	852	842
861	851	841



Com		UC1		UC2		UC3	UC4	M2C/M6C	SDE2/Res.	SDE1
E5	E6	Z5	M1	M2	M3	F2 +	V3	484/Q3	184/K2	84
E3	E4	Z3	Z4	T3	T4	VN	V2	474/Q2	182	82
E1	E2	Z1	Z2	T1	T2	F1 -	V1	471/Q1	181/K1	81

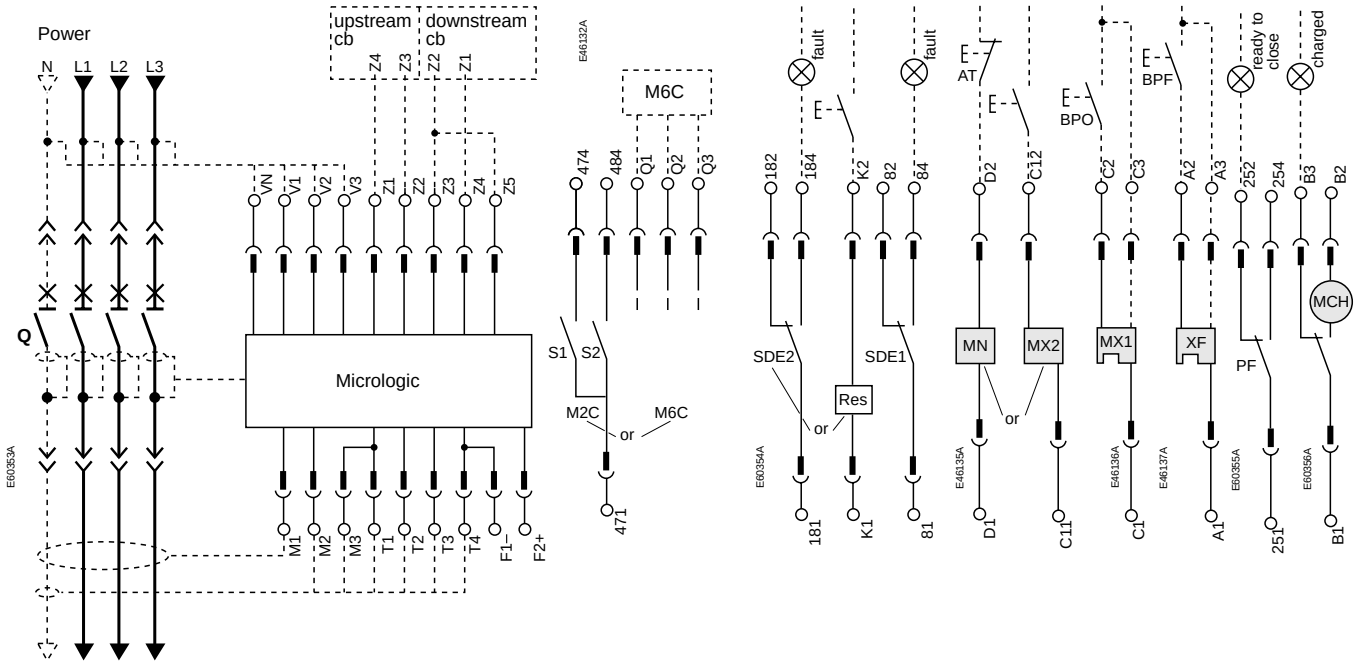
MN/MX2	MX1	XF	PF	MCH
D2/C12	C2	A2	254	B2
/C13	C3	A3	252	B3
D1/C11	C1	A1	251	B1

OF24	OF23	OF22	OF21	OF14	OF13	OF12	OF11	OF4	OF3	OF2	OF1
244	234	224	214	144	134	124	114	44	34	24	14
242	232	222	212	142	132	122	112	42	32	22	12
241	231	221	211	141	131	121	111	41	31	21	11

Electrical diagrams
Fixed and drawout devices

The diagram is shown with circuits de-energised, all devices open, connected and charged and relays in normal position.

Power | **Control unit** | **Remote operation**



Control unit

Com		UC1		UC2		UC3	UC4	M2C / M6C
E5	E6	Z5	M1	M2	M3	F2+	V3	484 / Q3
E3	E4	Z3	Z4	T3	T4	VN	V2	474 / Q2
E1	E2	Z1	Z2	T1	T2	F1 –	V1	471 / Q1

Remote operation

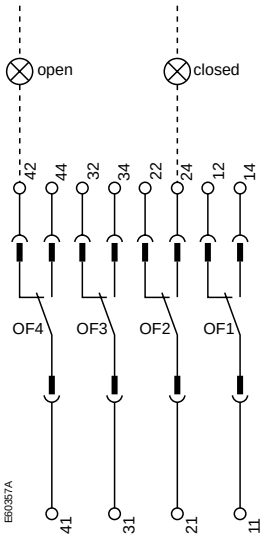
SDE2 / Res		SDE1	MN / MX2		MX1	XF	PF	MCH
184	/ K2	84	D2	/ C12	C2	A2	254	B2
182		82			C3	A3	252	B3
181	/ K1	81	D1	/ C11	C1	A1	251	B1

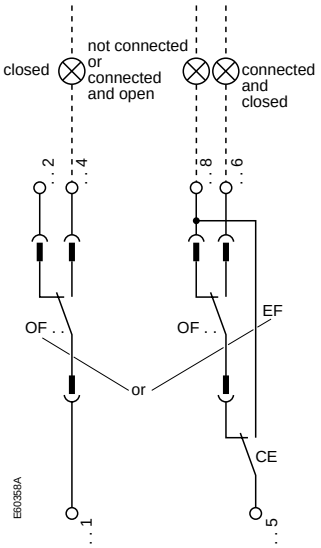
A	P	H	Control unit	Remote operation
■	■	■	**Com**: E1-E6 communication	**SDE2**: Fault-trip indication contact **or** **Res**: Remote reset
■	■	■	**UC1**: Z1-Z5 zone selective interlocking; Z1 = ZSI OUT SOURCE Z2 = ZSI OUT; Z3 = ZSI IN SOURCE Z4 = ZSI IN ST (short time) Z5 = ZSI IN GF (earth fault) M1 = Vigi module input (Micrologic 7)	**SDE1**: Fault-trip indication contact (supplied as standard)
■	■	■		**MN**: Undervoltage release **or** **MX2**: Shunt release
■	■	■	**UC2**: T1, T2, T3, T4 = external neutral;	
■	■	■	M2, M3 = Vigi module input (Micrologic 7)	**MX1**: Shunt release (standard or communicating)
				XF: Closing release (standard or communicating)
■	■	■	**UC3**: F2+, F1– external 24 V DC power supply	**PF**: "Ready to close" contact
	■	■	VN external voltage connector	**MCH**: Gear motor.
	■	■	**UC4**: V1, V2, V3 optional external voltage protector	
	■	■	**M2C**: 2 programmable contacts (internal relay); ext. 24 V DC power supply required **or**	***Note:*** *When communicating MX or XF releases are used, the third wire (C3, A3) must be connected even if the communications module is not installed.*
	■	■	**M6C**: 6 programmable contacts (external relay); 24 V DC power supply required	

A : *Digital ammeter*
P : *A + power meter + programmable protection*
H : *P + harmonics*

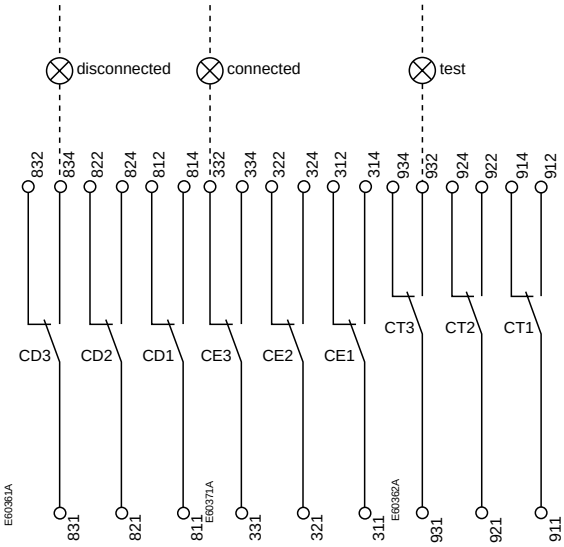
Electrical diagrams

Indication contacts





Chassis contacts



Indication contacts

OF4	OF3	OF2	OF1
44	34	24	14
42	32	22	12
41	31	21	11

OF24	OF23	OF22	OF21	OF14	OF13	OF12	OF11
244	234	224	214	144	134	124	114
242	232	222	212	142	132	122	112
241	231	221	211	141	131	121	111

or

EF24	EF23	EF22	EF21	EF14	EF13	EF12	EF11
248	238	228	218	148	138	128	118
246	236	226	216	146	136	126	116
245	235	225	215	145	135	125	115

Chassis contacts

CD3	CD2	CD1	CE3	CE2	CE1	CT3	CT2	CT1
834	824	814	334	324	314	934	924	914
832	822	812	332	322	312	932	922	912
831	821	811	331	321	311	931	921	911

or

CE6	CE5	CE4
364	354	344
362	352	342
361	351	341

or

CE9	CE8	CE7
394	384	374
392	382	372
391	381	371

Indication contacts

OF4: ON/OFF
OF3 indication
OF2 contacts
OF1

OF 24 or EF 24 ON/OFF indication contacts Combined "connected/closed" indication contacts

OF 23 or EF 23

OF 22 or EF 22

OF 21 or EF 21

OF 14 or EF 14

OF 13 or EF 13

OF12 or EF12

OF11 or EF11

Chassis contacts

CD3: Disconnected
CD2 -position
CD1 contacts

CE3: Connected
CE2 -position
CE1 contacts

CT3: Test-position
CT2 contacts
CT1 contacts

or

CE6: Connected
CE5 position
CE4 contacts

or

CE9: Connected
CE8 position
CE7 contacts

or

CD6: Disconnected
CD5 position
CD4 contacts

Key:

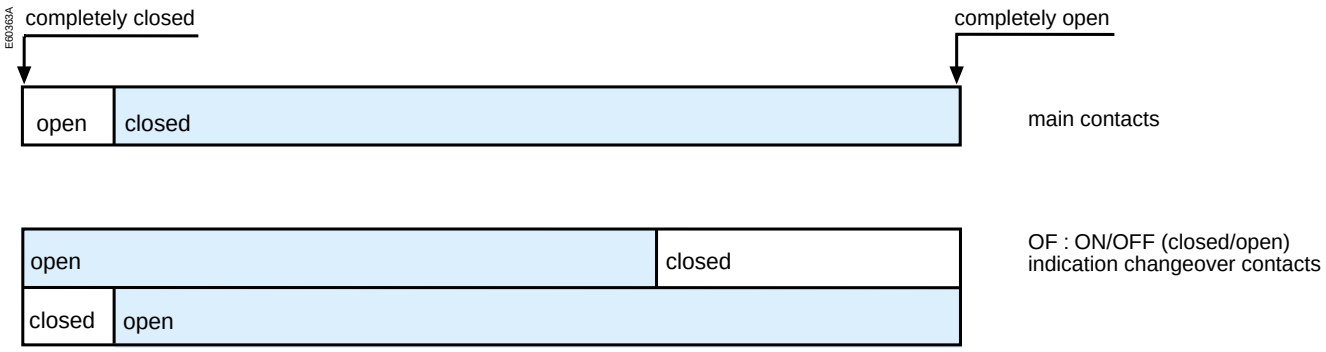
Drawout device only

XXX *SDE1, OF1, OF2, OF3, OF4 supplied as standard*

Interconnected connections (only one wire per connection point)

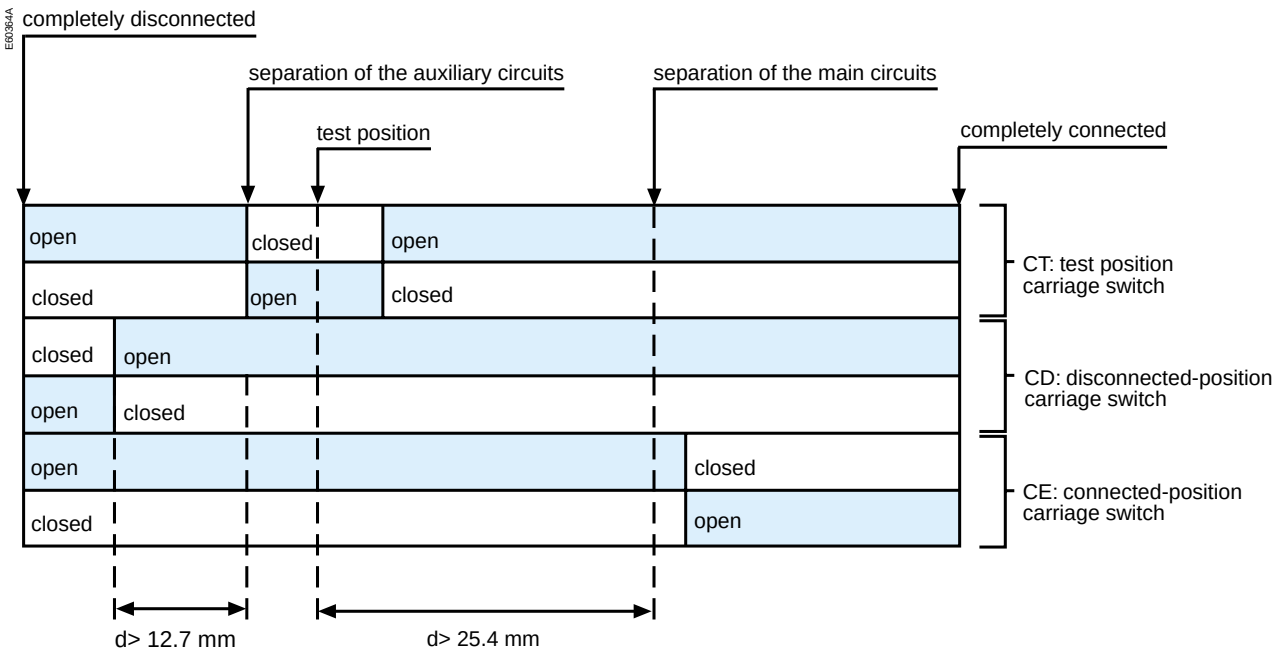
The ON/OFF indication contacts signal the status of the device main contacts.

Circuit breaker



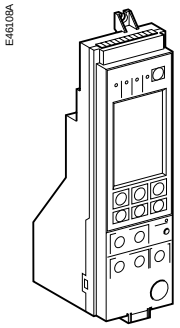
The carriage switches indicate the "connected", "test" and "disconnected" positions.

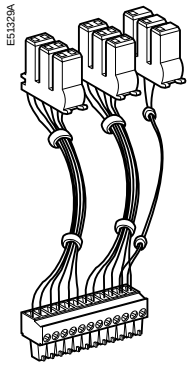
Chassis



Micrologic control units

For more in-depth information, see the control-unit user manual





Micrologic control units

■ standard equipment, one per device
■ part numbers:
(long-time rating plug and connection cables not included, see below)
Micrologic 2.0: 33069
Micrologic 5.0: 33070
Micrologic 2.0A: 33071
Micrologic 5.0A: 33072
Micrologic 6.0A: 33073
Micrologic 7.0A: 33074
Micrologic 5.0P: 47058
Micrologic 6.0P: 47059
Micrologic 7.0P: 47060
Micrologic 5.0H: 47061
Micrologic 6.0H: 47062
Micrologic 7.0H: 47063
■ part numbers for connection cables:
47065
for drawout device:
47805.

■ depending on the model, control units offer in addition:
□ fault indications
□ measurement of electrical parameters (current, voltage, power, etc.)
□ harmonic analysis
□ communication.

Long-time rating plugs

■ standard equipment, one per control unit.
■ part numbers:
0.4 to 1 x Ir setting:
33542
0.4 to 0.8 x Ir setting:
33543
0.8 to 1 x Ir setting:
33544
Off (no long-time protection): 33545.

■ the plugs determine the setting range for the Long-time protection.

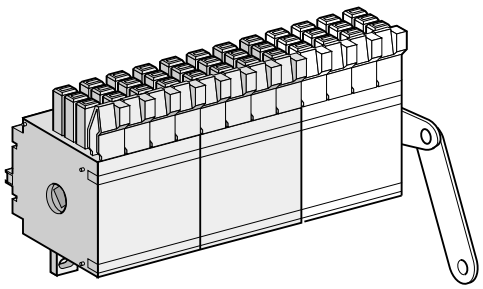
M2C and M6C programmable contacts

■ optional equipment, used with Micrologic P and H control units.
■ part numbers (connection cables not included, see below):
2 M2C contacts:
47086 + 47087
6 M6C contacts: 47066
■ part numbers for connection cables:
for fixed device: 47074
for drawout device:
47849.

■ contacts can be programmed using the keypad on the control unit or via the COM option.
■ they indicate:
□ the type of fault
□ instantaneous or delayed threshold overruns.

■ M2C: 2 contacts (6 A-240 V)
■ M6C: 6 contacts (6A-240V).
■ permissible load on each of the M6C relay outputs:
□ 240 V AC:
5 A where p.f = 0.7
□ 380 V AC:
3 A where p.f = 0.7
□ 24 V DC:
8 A where L/R = 0
□ 48 V DC:
1.5 A where L/R = 0
□ 125 V DC:
0.4 A where L/R = 0
□ 250 V DC:
0.15 A where L/R = 0
■ M6C supply voltage:
24 V DC ± 5%
■ M6C maximum consumption: 100 mA

Indication contacts


E51331A

ON/OFF indication contacts (OF)

■ standard equipment: 4 OF per device.

■ OF contacts indicate the position of main contacts
■ they trip when the minimum isolation distance between the main contacts is reached

■ 4 changeover contacts
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
□ 480 V: 10 A (rms)
□ 600 V: 6 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
250 V: 3 A.

Additional ON/OFF indication contacts (OF)

■ optional equipment, two blocks of 4 OF contacts per device
■ part numbers (connection cables not included, see below):
one block of 4 OF contacts: 47887
■ part numbers for connection cables:
for fixed device:
47074
for drawout device:
47849

■ OF contacts indicate the position of the main contacts
■ they trip when the minimum isolation distance between the main contacts is reached

■ changeover contacts
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
□ 480 V: 10 A (rms)
□ 600 V: 6 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
250 V: 3 A.

Combined "connected/closed" contacts (EF)

■ optional equipment, 8 EF contacts per device
■ each contact is mounted in place of the connector of an additional OF contact
■ part number:
one EF contact: 48477

■ the contact combines the "device connected" and the "device closed" information to produce the "circuit closed" information

■ changeover contacts
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
□ 240 V: 10 A (rms)
□ 380 V: 10 A (rms)
□ 480 V: 10 A (rms)
□ 600 V: 6 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
□ 48 V: 2.5 A
□ 130 V: 0.8 A
□ 250 V: 0.3 A.

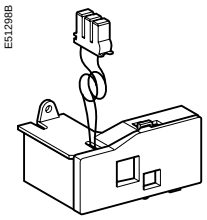
"Fault-trip" indication contact (SDE/1)

■ standard equipment on circuit breakers, one SDE/1 contact per device
■ not available for switch-disconnector versions

■ the contact provides a remote indication of device opening due to an electrical fault

■ changeover contact
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
□ 240 V: 10 A (rms)
□ 380 V: 5 A (rms)
□ 480 V: 5 A (rms)
□ 600 V: 3 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
□ 48 V: 3 A
□ 125 V: 0.3 A
□ 250 V: 0.15 A.

Indication contacts

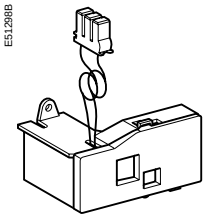


Additional "fault-trip" indication contact (SDE/2)

■ optional equipment for circuit breakers, one additional SDE/2 contact per device
■ not available for switch-disconnector versions
■ not compatible with the Res option
■ part numbers (connection cables not included, see below):
one SDE/2 contact: 47915
■ part numbers for connection cables:
for fixed device: 47074
for drawout device: 47849

■ the contact remotely indicates device opening due to an electrical fault

■ changeover contact
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
□ 240 V: 10 A (rms)
□ 380 V: 5 A (rms)
□ 480 V: 5 A (rms)
□ 600 V: 3 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
□ 48 V: 3 A
□ 125 V: 0.3 A
□ 250 V: 0.15 A.



Electrical reset after fault trip (Res)

■ optional equipment, one Res per device
■ not compatible with the SDE/2 option
■ part numbers (connection cables not included, see below):
110/130 V AC: 47901
220/240 V AC: 47902
■ part numbers for connection cables:
for fixed device: 47074
for drawout device: 47849

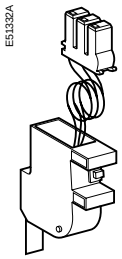
■ the contact remotely resets the device following tripping due to an electrical fault

"Springs charged" limit switch contact (CH)

■ standard equipment, one CH contact per device

■ the contact indicates the "charged" status of the operating mechanism (springs charged)

■ changeover contact
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
□ 240 V: 10 A (rms)
□ 380 V: 5 A (rms)
□ 480 V: 5 A (rms)
□ 600 V: 3 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
□ 48 V: 3 A
□ 125 V: 0.3 A
□ 250 V: 0.25 A.



"Ready to close" contact (PF)

■ optional equipment, one PF contact per device
■ part numbers (connection cables not included, see below):
one PF contact: 47080
■ part numbers for connection cables:
for fixed device: 47074
for drawout device: 47849

■ the contact indicates that the device may be closed because all the following are valid:
□ circuit breaker is open
□ spring mechanism is charged
□ a maintained closing order is not present
□ a maintained opening order is not present

■ changeover contact
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
□ 240 V: 10 A (rms)
□ 380 V: 5 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
□ 48 V: 3 A
□ 125 V: 0.3 A
□ 250 V: 0.15 A.

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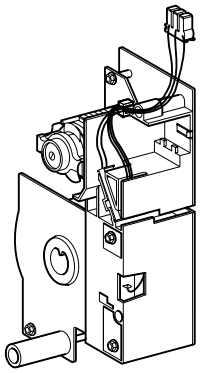

Gear motor (MCH)

■ optional equipment, one MCH gear motor per device
■ part numbers (connection cables not included, see below):
100/130 V AC: 47893
200/240 V AC: 47894
277 V AC: 47895
380/415 V AC: 47896
400/440 V AC: 47897
480 V AC: 47898
24/30 V DC: 47888
48/60 V DC:47889
100/125 V DC: 47890
200/250 V DC: 47891
■ part numbers for connection cables:
for fixed device:
47074
for drawout device:
47849
■ the gear motor automatically charges and recharges the spring mechanism
■ charging time:
4 seconds max.
■ consumption:
□ 180 VA AC
□ 180 W DC
■ inrush current:
2 to 3 In for 0.1 second
■ operating rate:
maximum 3 cycles per minute.

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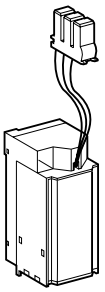
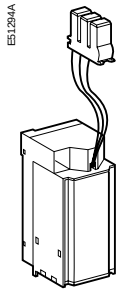


Opening releases MX/1 and MX/2, closing release XF

■ optional equipment, 1 or 2 MX releases per device, 1 XF per device
■ the function (MX or XF) is determined by where the coil is installed
■ part numbers (connection cables not included, see below):
□ standard version:
12 V AC
50/60 Hz / DC: 33658
24/30 V AC
50/60 Hz / DC: 33659
48/60 V AC
50/60 Hz / DC: 33660
100/130 V AC
50/60 Hz / DC: 33661
200/250 V AC
50/60 Hz / DC: 33662
277 V AC
50/60 Hz / DC: 33663
380/480 V AC
50/60 Hz / DC: 33664.
□ communicating version (with COM option):
12 V AC
50/60 Hz / DC: 33032
24/30 V AC
50/60 Hz / DC: 33033
48/60 V AC
50/60 Hz / DC: 33034
100/130 V AC
50/60 Hz / DC: 33035
200/250 V AC
50/60 Hz / DC: 33036
240/277 V AC
50/60 Hz / DC: 33037
380/480 V AC
50/60 Hz / DC: 33038
■ part numbers for connection cables:
for fixed device:
47074
for drawout device:
47849
■ the MX release instantaneously opens the circuit breaker when energised
■ the XF release instantaneously closes the circuit breaker when energised, if the device is "ready to close"
■ device response time:
□ MX: 50 ms ± 10
□ XF: 70 ms +10 / -15
> 3200 A: 80 ms ± 10
■ operating threshold:
□ MX: 0.7 to 1.1 x Un
□ XF: 0.85 to 1.1 x Un
■ the supply can be maintained
■ consumption:
□ pick-up (80 ms):
200 VA
□ hold: 4.5 VA.

Auxiliairies for remote operation

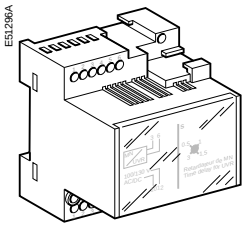


Instantaneous undervoltage releases (MN)

■ optional equipment, 1 MN per device
■ not compatible with the MX/2 opening release
■ part numbers (connection cables not included, see below):
24/30 V AC
50/60 Hz / DC: 33668
48/60 V AC
50/60 Hz / DC: 33669
100/130 V AC
50/60 Hz / DC: 33670
200/250 V AC
50/60 Hz / DC: 33671
380/480 V AC
50/60 Hz / DC: 33673
■ part numbers for connection cables:
for fixed device:
47074
for drawout device:
47849

■ the MN release instantaneously opens the circuit breaker when its supply voltage drops

■ device response time: 90 ms ±5
■ operating threshold:
□ opening:
0.35 to 0.7 x Un
□ closing: 0.85 x Un
■ consumption:
□ pick-up (80 ms):
200 VA
□ hold: 4.5 VA

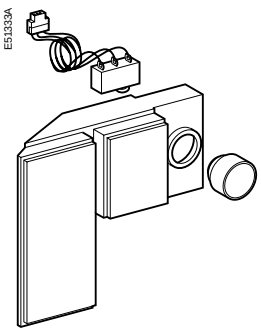


Delay unit for MN releases

■ optional equipment, 1 MN with delay unit per device.
■ delay-unit part numbers (must be ordered in addition to the MN):
48/60 V AC
50/60 Hz / DC: 33680
100/130 V AC
50/60 Hz / DC: 33681
200/250 V AC
50/60 Hz / DC: 33682
380/480 V AC
50/60 Hz / DC: 33683.

■ the unit delays operation of the MN release to eliminate circuit-breaker nuisance tripping during short voltage dips
■ the unit is wired in series with the MN and must be installed outside the circuit breaker

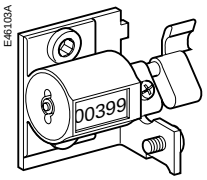
■ device response time: 0.5, 1, 1.5, 3 seconds
■ operating threshold:
□ opening:
0.35 to 0.7 x Un
□ closing: 0.85 x Un
■ consumption:
□ pick-up (80 ms):
200 VA
□ hold: 4.5 VA



Electrical closing pushbutton (BPFE)

■ optional equipment, 1 BPFE per device
■ part numbers (connection cables not included, see below):
48534
■ part numbers for connection cables:
for fixed device:
47074
for drawout device:
47849

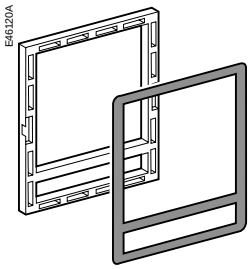
■ located on the front face of the device, this pushbutton carries out electrical closing of the circuit breaker via the XF release, taking into account all the safety functions that are part of the control/monitoring system of the installation.



Operation counter (CDM)

- optional equipment, one CDM per device
- part number: 48535

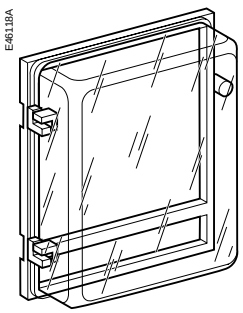
- the operation counter sums the number of operating cycles.



Escutcheon (CDP)

- optional equipment, one CDP per device
- part numbers:
for fixed device:
48601
for drawout device:
48603

- the CDP increases the degree of protection to IP 40 and IK 07 (fixed and drawout devices).



Transparent cover (CCP)

- optional equipment, one CP per device equipped with a CDP
- part number: 48604 (for fixed and drawout devices)

- mounted with a CDP, the CP increases the degree of protection to IP 55 and IK 10 (fixed and drawout devices).

Device mechanical accessories

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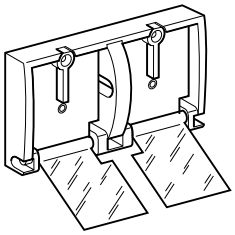
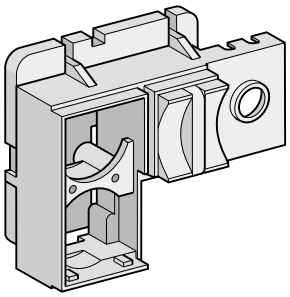


Transparent cover for pushbutton locking using a padlock, lead seal or screws

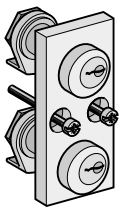
- optional equipment, one locking cover per device
- part number: 48536
- the transparent cover blocks access (together or separately) to the pushbuttons used to open and close the device
- locking requires a padlock, a lead seal or two screws.

E46579A



Device locking in the OFF position using a padlock

- optional equipment, one locking system per device
- part number: 48539
- the unit inhibits local or remote closing of the device
- up to three padlocks may be used for locking.

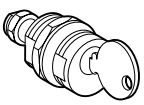


Device OFF position locking kit for keylocks

- optional equipement, one locking kit per device
- part numbers (locks not included):
  for Profalux or Ronis keylocks: 48541
  for Castell keylocks: 48543
  for Kirk keylocks: 48542
- the kit inhibits local or remote closing of the device.

Ronis

E51286A



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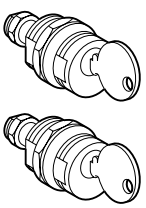

Profalux

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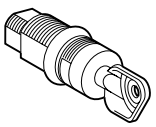

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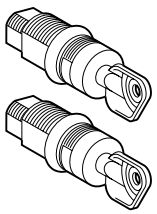
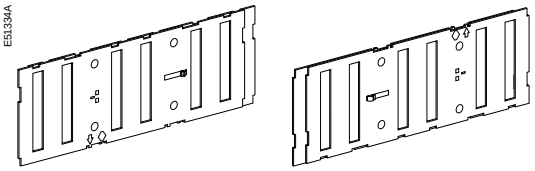


Keylocks required for the device locking kit

- one or two keylocks per locking kit
- part numbers:
  - Ronis:
    1 keylock: 41940
    2 keylocks: 41950.
  - Profalux:
    1 keylock: 42888
    2 keylocks: 42878.

Top shutter closed *Bottom shutter closed*

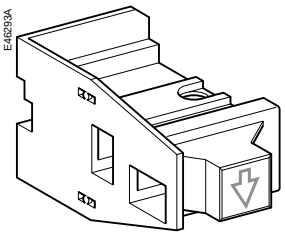


Safety shutters

■ optional equipment
■ part numbers
(set of shutters for top and bottom):
□ NW08/NW40:
3 poles: 48587
4 poles: 48589
□ NW40b/NW63
3 poles: 48588
4 poles: 48590

■ mounted on the chassis, the safety shutters automatically block access to the disconnecting contact cluster when the device is in the "disconnected" or "test" positions.

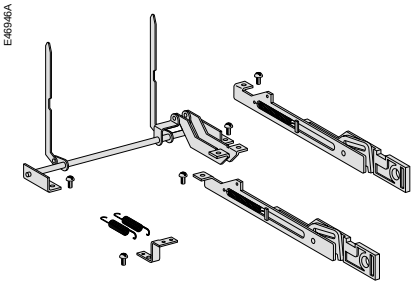
■ IP20.



Shutter locking blocks

■ optional equipment:
2 blocks for NW08 to NW40
4 blocks for NW40b to NW63
■ part number (2 blocks): 48591

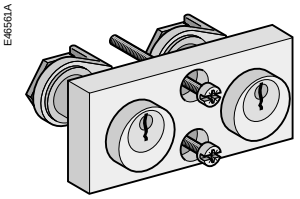
■ the block may be padlocked. It:
□ prevents connection of the device
□ locks the shutters in the closed position.



Shutter position indication and locking on front face

■ optional equipment
■ part numbers:
□ NW08/NW040:
3 and 4 poles: 48592
□ NW40b/NW63
3 poles: 48593
4 poles: 48594

■ this option located on the front of the chassis:
□ indicates that the shutters are closed
□ can be used to independently or simultaneously padlock the two shutters (top and bottom).

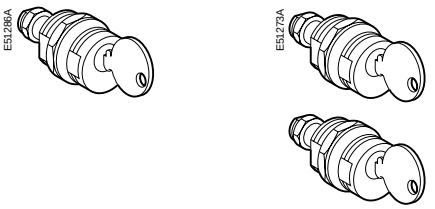


Circuit breaker locking in "disconnected" position

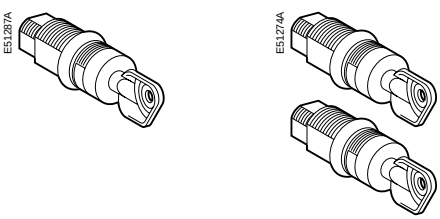
■ optional equipment, one locking system per device
■ part numbers
for Profalux or Ronis keylocks: 48564
for Castell keylocks: 48566
for Kirk keylocks: 48565

■ mounted on the chassis and accessible with the door closed, this system locks the circuit breaker in "disconnected" position using one or two keylocks
■ the "disconnected" position locking system may be modified to lock the circuit breaker in all three positions.

Ronis



Profalux

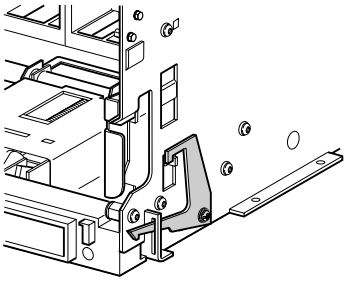


Keylocks required with the "disconnected" position locking system

■ one or two keylocks per locking system
■ part numbers:
□ Ronis:
1 keylock: 41940
2 keylocks: 41950
□ Profalux:
1 keylock: 42888
2 keylocks: 42878.

Chassis mechanical accessories

E46652A



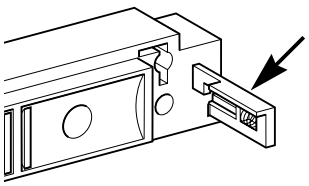
Door interlock

- optional equipment, one door interlock per chassis
- part number: 47914

- this device inhibits opening of the cubicle door when the circuit breaker is in "connected" or "test" position

- it may be mounted on the left or right-hand side of the chassis.

E46124A



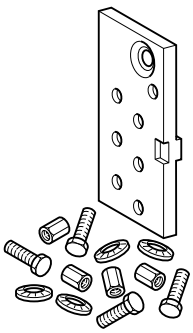
Racking interlock

- optional equipment, one racking interlock per chassis
- part number: 48582

- this device prevents insertion of the racking handle when the cubicle door is open

- it is mounted on the right-hand side of the chassis

E46111A

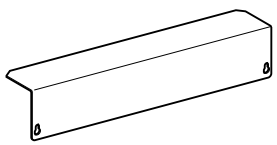


Mismatch protection

- optional equipment, one mismatch protection device per chassis
- part number: 33767

- mismatch protection offers twenty different combinations that the user may select to ensure that only a compatible circuit breaker is mounted on a given chassis.

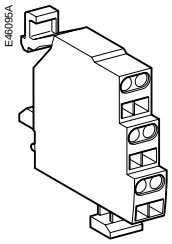
E51351A



Auxiliary terminal shield (CB)

- optional equipment, one CB shield per chassis
- part numbers:
  - NW08/NW040
    3 poles: 48595
    4 poles: 48596
  - NW40b/NW63
    3 poles: 48597
    4 poles: 48598

- the shield prevents access to the terminal block of the electrical auxiliaries.



"Connected", "disconnected" and "test" position carriage switches (CE, CD, CT)

■ optional equipment, one to nine carriage switches
■ standard configuration, 0 to 3 CE, 0 to 3 CD, 0 to 3 CT
■ other configurations (by ordering additional actuators):
0 to 9 CE, 0 CD, 0 CT
0 to 6 CE, 0 to 3 CD, 0 CT
0 to 6 CE, 0 CD, 0 to 3 CT
■ part numbers (connection cables not included, see below):
□ 1 carriage switch: 33170
□ 1 set of actuators for additional carriage switches: 48560
■ part number for connection cables (per carriage switch): 47849

■ the carriage switches indicate the three positions:
CE: connected position
CD: disconnected position (when the minimum isolation distance between the main contacts and the auxiliary contacts is reached)
CT: test position

■ changeover contact
■ rated current: 10 A
■ breaking capacity 50/60 Hz for AC power (AC12 as per 947-5-1):
240 V: 10 A (rms)
380 V: 5 A (rms)
■ breaking capacity for DC power (DC12 as per 947-5-1):
250 V: 0.3 A.

Initial tests
Procedure

These operations must be carried out in particular before using a Masterpact device for the first time.

A general check of the circuit breaker takes only a few minutes and avoids any risk of mistakes due to errors or negligence.
A general check must be carried out:
- prior to initial use
- following an extended period during which the circuit breaker is not used.

A check must be carried out with the entire switchboard de-energised.
In switchboards with compartments, only those compartments that may be accessed by the operators must be de-energised.

Electrical tests

Insulation and dielectric-withstand tests must be carried out immediately after delivery of the switchboard. These tests are precisely defined by international standards and must be directed and carried out by a qualified expert.

Prior to running the tests, it is absolutely necessary to:
- disconnect all the electrical auxiliaries of the circuit breaker (MCH, MX, XF, MN, Res electrical remote reset)
- remove the long-time rating plug on the 7.0 A, 5.0 P, 6.0 P, 7.0 P, 5.0 H, 6.0 H, 7.0 H control units. Removal of the rating plug disconnects the voltage measurement input.

Switchboard inspection

Check that the circuit breakers are installed in a clean environment, free of any installation scrap or items
(tools, electrical wires, broken parts or shreds, metal objects, etc.).

Conformity with the installation diagram

Check that the devices conform with the installation diagram:
- breaking capacities indicated on the rating plates
- identification of the control unit (type, rating)
- presence of any optional functions (remote ON/OFF with motor mechanism, auxiliaries, measurement and indication modules, etc.)
- protection settings (long time, short time, instantaneous, earth fault)
- identification of the protected circuit marked on the front of each circuit breaker.

Condition of connections and auxiliaries

Check device mounting in the switchboard and the tightness of power connections.
Check that all auxiliaries and accessories are correctly installed:
- electrical auxiliaries
- terminal blocks
- connections of auxiliary circuits.

Operation

Check the mechanical operation of the circuit breakers:
- opening of contacts
- closing of contacts.

Check on the control unit

Check the control unit of each circuit breaker using the respective user manuals.

What to do when the circuit breaker trips

Note the fault

Faults are signalled locally and remotely by the indicators and auxiliary contacts installed on circuit breakers (depending on each configuration). See page 12 in this manual and the user manual of the control unit for information on the fault indications available with your circuit breaker.

Identify the cause of tripping

A circuit must never be reclosed (locally or remotely) before the cause of the fault has been identified and cleared.

A fault may have a number of causes.
- depending on the type of control unit, fault diagnostics are available. See the user manual for the control unit.
- depending on the type of fault and the criticality of the loads, a number of precautionary measures must be taken, in particular the insulation and dielectric tests on a part of or the entire installation. These checks and test must be directed and carried out by qualified personnel.

Inspect the circuit breaker following a short-circuit

- check the arc chutes (see page 43).
- check the contacts (see page 43).
- check the tightness of connections (see the device installation manual).
- check the disconnecting-contact clusters (see page 44).

Reset the circuit breaker

The circuit breaker can be reset locally or remotely.
See page 12 in this manual for information on how the circuit breaker can be reset.

Recommended maintenance program

Recommended program for devices used under normal operating conditions:
Ambient temperature: -5° C / +60° C
Normal atmosphere

Periodic inspections required

Interval	Operations	Procedure
each year	■ open and close the device locally and remotely, successively using the various auxiliaries ■ test the operating sequences ■ test the control unit using the mini test kit	◻ see pages 10 and 11 ◻ see page 8 ◻ see the user manual of the control unit
every two years or when the control-unit maintenance indicator reaches 100	■ check the arc chutes ■ check the main contacts ■ check the tightness of connections ■ check the disconnecting-contact clusters	◻ see page 43 ◻ see page 43 ◻ see the device installation manual ◻ see page 44

Parts requiring replacement, depending on the number of operating cycles

The following parts must be replaced periodically to lengthen the service life of the device (maximum number of operating cycles).

Part	Intervening entity	Description or procedure
arc chutes	■ user	◻ see page 43.
main contacts	■ inspection: user ■ replacement: Schneider After Sales Support	◻ see page 43.
MCH gear motor	■ user	◻ see page 9.
mechanical interlocks	■ user	
connecting-rod springs	■ Schneider After Sales Support	
MX/MN/XF	■ user	◻ see pages 10, 11.

Part replacement must be programmed on the basis of the data below, listing the service life of the various parts in numbers of O/C cycles at the rated current.

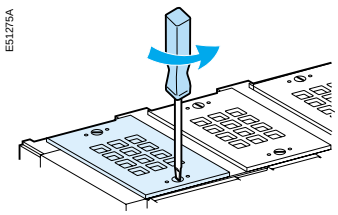
Number of O/C cycles at the rated current

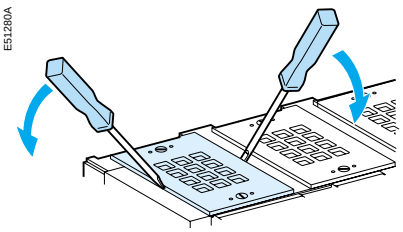
Type of circuit breaker	Maximum service life	Service life of various parts			
		Arc chutes	Main contacts	Connecting-rod springs, MCH	MX/XF releases
NW08 to NW16 types N1/H1/H2	25000	10000	10000	12500	12500
NW08 to NW16 type L1	25000	3000	10000	12500	12500
NW20 to NW25 types H1/H2	20000	440 V: 8000 690 V: 6000	440 V: 8000 690 V: 6000	10000	12500
NW20 to NW25 type H3	20000	2000	440 V: 8000 690 V: 6000	10000	12500
NW20 type L1	20000	3000	10000	10000	12500
NW32 to NW40 types H1/H2	20000	440 V: 5000 690 V: 2500	440 V: 5000 690 V: 2500	10000	12500
NW32 to NW40 type H3	20000	1250	440 V: 5000 690 V: 2500	10000	12500
NW40b to NW63 types H1/H2	10000	1500	3000	5000	12500

Before undertaking any maintenance work, de-energise the installation and fit locks or warnings in compliance with all applicable safety standards.

Arc chutes

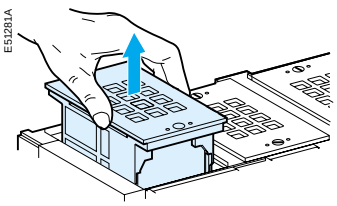
■ remove the fixing screws:
□ types N1, H1 and H2 ≤ NW 40: two screws
□ types H1 and H2 ≥ NW 40b, type H3: three screws
□ type L1: four screws.

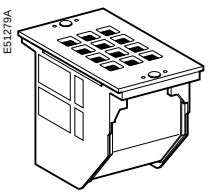




■ check the arc chutes:
□ chamber not cracked
□ separators not corroded.

If necessary, replace the arc chutes.





If the control unit has a maintenance indicator, there is no need to systematically check the contacts.

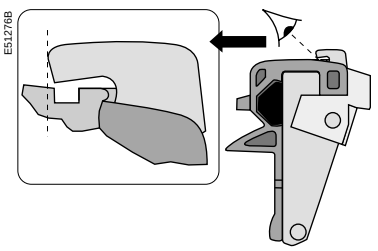
If the contacts are worn, have the concerned poles replaced by the Schneider service centre.

Wear of main contacts

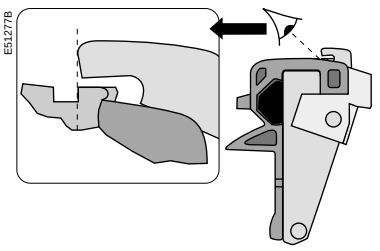
■ remove the arc chutes
■ close the device and check the contacts

Type N1, H1, H2, H3 (≤ 4000 A)

Contacts OK

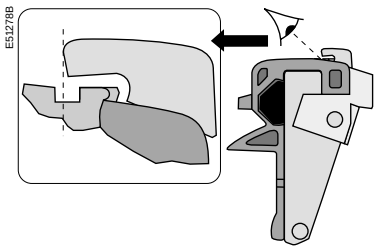


Contacts worn

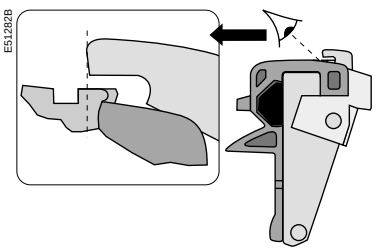


Type H1, H2 (≥ 4000b A), L1

Contacts OK



Contacts worn



Maintenance operations

Pince d'embrochage

■ grease the contacts using the grease listed on page 45, supplied by Schneider Electric
■ check the contacts as follows:
□ open the circuit breaker
□ de-energise the busbars
□ disconnect the circuit breaker
□ remove the circuit breaker
□ check the contact fingers (no sign of copper should be visible)

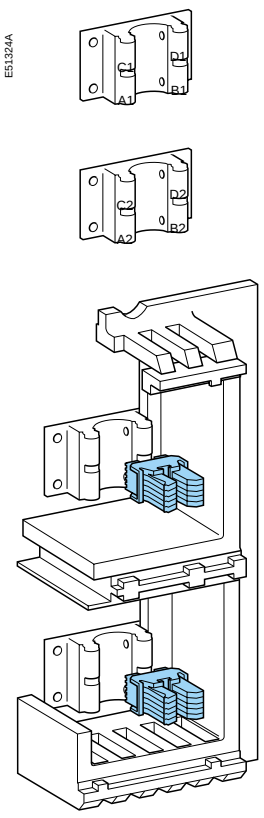
Replace any worn clusters.

■ the position of the clusters must correspond the table bellow.

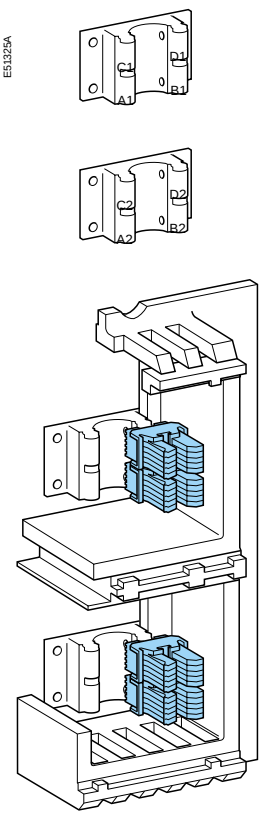
E51295B

Calibre / Type	NW08	NW10 NW12	NW16	NW20	NW25	NW32	NW40	NW40b NW50	NW63
N1	montage 1 2 pinces / pôle								
H1	montage 2 4 pinces / pôle			montage 3 8 pinces / pôle		montage 4 12 pinces / pôle	montage 5 14 pinces / pôle	montage 4 24 pinces / pôle	
H2									
H3									
L1	montage 3 8 pinces / pôle			montage 5 14 pinces / pôle					

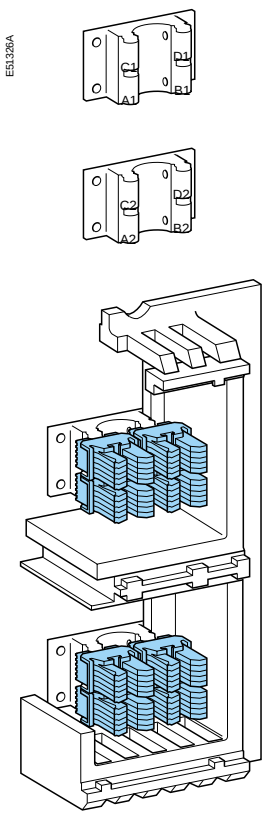
montage 1



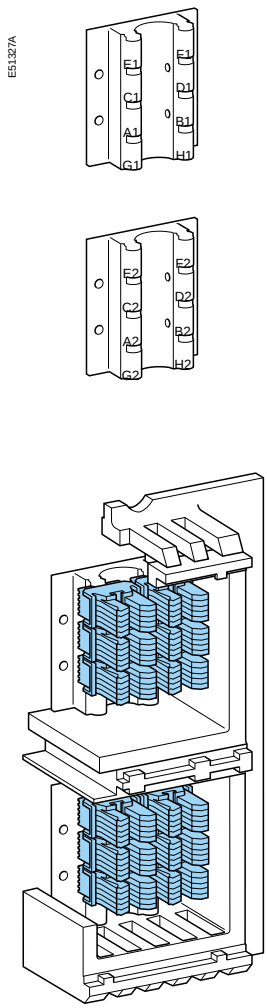
montage 2



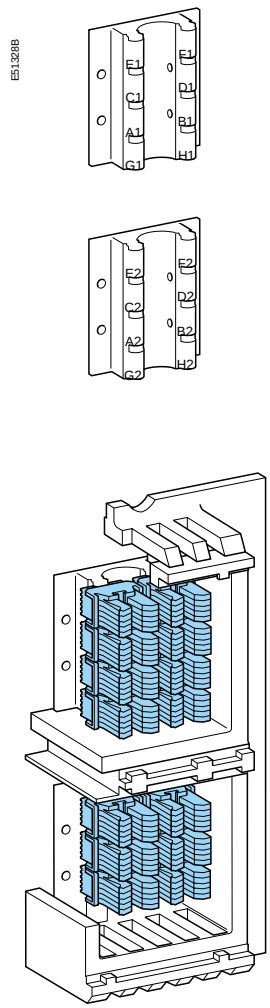
montage 3



montage 4



montage 5

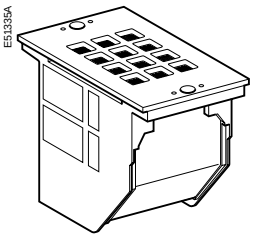


Ordering replacement parts

Electrical accessories

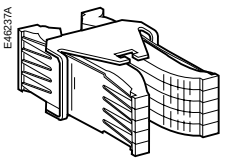
The electrical accessories that may require replacement are the following:
- MCH gear motor
- MX opening release(s)
- XF closing release
- MN undervoltage release.

See pages 33 and 34 in the "Auxiliaries for remote operation" section for their characteristics and part numbers.


E51335A

Arc chutes

- part numbers (1 arc chute):
  - NW type N1
    NW08 to NW40 types H1 and H2: 47935
  - NW40b to NW63 types H1 and H2
    NW type H3: 47936
  - NW type L1: 47937.
- NW08 to NW40: one chute per pole
  NW40b to NW63: two chutes per pole.

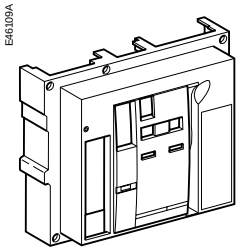

E46237A

Disconnecting-contact clusters for standard NW

- part number (1 cluster): 33166
- number per circuit breaker, see table page 44.

Grease for disconnecting-contact clusters

- part number (1 can): for standard NW 33160.
- part number (1 can): for NW with corrosion protection 48617.


E46109A

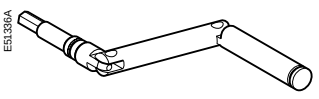
Front

- part number (1 front for 3- or 4-pole devices): 47939.
- 1 per device.

E46126A

Charging handle

- part number (1 handle): 47940.
- 1 per device.


E51336A

Crank

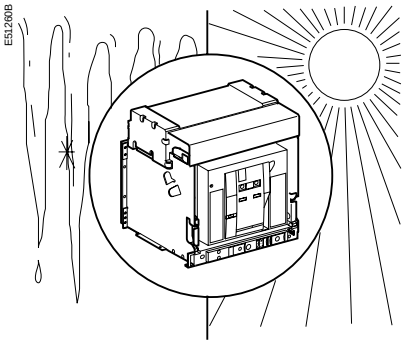
- part number (1 crank): 47944.
- 1 per device.

Troubleshooting and solutions

Problem	Probable causes	Solutions
opening of device not indicated by the pushbutton indicator signalling a fault trip	■ the supply voltage for the MN undervoltage release is too low or equal to zero.	□ check the voltage. Implement corrective action
	■ the MN release is faulty.	□ replace the faulty device
	■ load-shedding order sent by another device.	□ check the overall load on the distribution system. If necessary, modify the settings of devices in the installation.
	■ transient presence of the voltage across the terminals of the MX shunt release.	□ determine the origin of the order.
instantaneous opening after each attempt to close the circuit breaker (indicated by the (pushbutton indicator signalling a fault trip)	■ closing on a short-circuit.	□ clear the fault. Check the condition of the Masterpact device before putting it back into service
	■ transient overcurrent when closing.	□ modify the distribution system or the control-unit settings Check the condition of the Masterpact device before putting it back into service
	■ thermal memory.	□ see the user manual of the control unit.
circuit breaker cannot be opened remotely can be opened locally	■ insufficient supply voltage for the MX shunt release(s) U < 0.7 Un.	□ check the supply voltage. Apply a voltage between 0.7 and 1.1 Un.
	■ faulty electrical circuit for the MX shunt release(s).	□ remove the front face □ check the MX shunt release(s)
	■ drop in voltage across the terminals of the MN release(s) to less than 0.35 Un.	□ completely cut the supply voltage of the release to be checked. The circuit breaker should open. - If it does not open replace the tested release - If it opens, resupply the tested release with power and reclose the circuit breaker. Slowly reduce the voltage and check that the release opens the circuit breaker between 0.35 and 0.7 Un. If there is a problem, replace the tested release.
circuit breaker cannot be opened locally	■ faulty operating mechanism or welded main contacts.	□ contact a Schneider service centre.
nuisance tripping of the circuit breaker (with pushbutton indicator signalling a fault trip)	■ reset pushbutton indicator not pushed-in completely.	□ push in completely the reset pushbutton indicator.

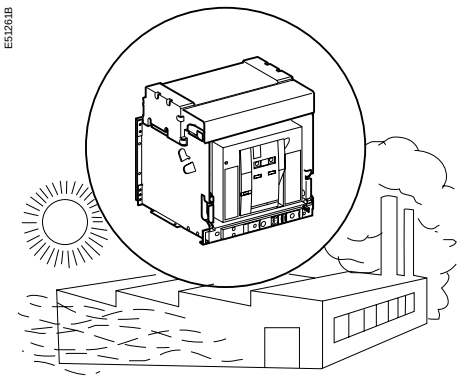
Problem	Probable causes	Solutions
circuit breaker cannot be closed remotely or locally	■ closing on a short-circuit.	□ clear the fault. Check the condition of the Masterpact device before putting it back into service.
	■ pushbutton indicator signalling a fault trip has not been reset (only if reset is not automatic).	□ reset the pushbutton indicator.
	■ circuit breaker not completely connected.	□ terminate racking in (connection) of the circuit breaker.
	■ anti-pumping function.	□ cut the supply of power to the XF closing release, then resupply it.
	■ circuit breaker not charged (spring mechanism).	□ check the supply of power to the MCH gear motor. Check the supply circuits. Check that manual charging is possible. If necessary, replace the MCH gear motor.
	■ the XF closing release continuously supplied with power.	□ cut the supply of power to the XF closing release, then send the closing order again via the XF, but only if the circuit breaker is "ready to close".
	■ MX shunt release(s) supplied with power.	□ determine why the MX release(s) are supplied with power. Cut the supply of power to the concerned MX release(s), then attempt to close via the XF.
	■ MN release not supplied with power or faulty.	□ supply the MN with voltage greater than 0.85 Un, then attempt to close via the XF. If the circuit breaker does not close, remove the front face and check that the pick-up voltage of the MN is correct If not, replace the auxiliary.
	■ circuit breaker locked in the "open" position.	□ disable the locking function.
	■ circuit breaker interlocked.	□ check the situation, it may be normal.
circuit breaker cannot be closed remotely, can be closed locally.	■ XF closing release not supplied with enough power or faulty.	□ check the power supply (voltage should be between 0.85 and 1.1 Un)
circuit breaker cannot be recharged electrically.	■ insufficient supply voltage for the MCH gear motor.	□ check the supply voltage. Check the supply circuit for the MCH gear motor. Attempt to recharge the mechanism manually. If there is a problem, the mechanism is faulty. Contact a Schneider service centre. If the mechanism can be charged manually, the MCH gear motor is faulty and must be replaced.
the crank cannot be inserted to connect or disconnect the circuit breaker.	■ system is padlocked, a "connected" or "disconnected" position locking function is enabled or the racking interlock is enabled.	□ remove the padlock and/or disable the locking function(s).
	■ chassis rails not completely pushed in.	□ push the rails in completely.
circuit breaker or right-hand rail of chassis (circuit breaker removed) cannot be removed.	■ the crank has not been removed from the circuit breaker.	□ remove the crank and store it.
	■ the circuit breaker is not completely disconnected.	□ completely disconnect the circuit breaker.
	■ system is padlocked, a "connected" or "disconnected" position locking function is enabled or the racking interlock is enabled.	□ remove the padlock and/or disable the locking function(s).
circuit breaker cannot be connected (racked in).	■ the circuit breaker and chassis do not match.	□ check the match between the two. If OK, check the mismatch protection installed on the circuit breaker and chassis.
	■ the disconnecting-contact clusters are incorrectly positioned.	□ check the position of the disconnecting-contact clusters.
	■ the safety shutters are locked (locked inside chassis or on front face).	□ remove the lock(s).

Checking Masterpact operating conditions



Ambient temperature

Masterpact NW devices can operate under the following temperature conditions:
- the electrical and mechanical characteristics are stipulated for an ambient temperature of -5° C to +70° C
- circuit-breaker closing is guaranteed down to -35° C
- Masterpact NW (without the control unit) can be stored in an ambient temperature of -40° C to +85° C
- the control unit can be stored in an ambient temperature of -25° C to +85° C.



Extreme atmospheric conditions

Masterpact NW devices have successfully passed the tests defined by the following standards for extreme atmospheric conditions:

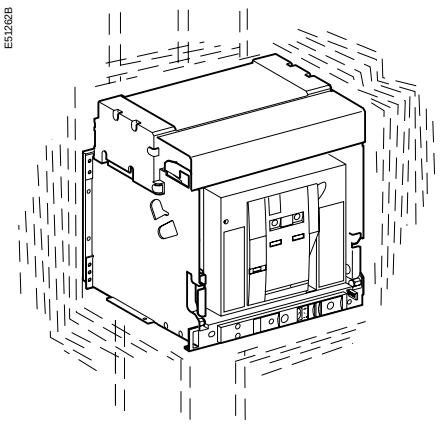
- IEC 68-2-1: dry cold at -55° C
- IEC 68-2-2: dry heat at +85° C
- IEC 68-2-30: damp heat (temperature +55° C, relative humidity 95%)
- IEC 68-2-52 level 2: salt mist.

Masterpact NW devices can operate in the industrial environments defined by standard IEC 947 (pollution degree up to 4).

It is nonetheless advised to check that the devices are installed in suitably cooled switchboards without excessive dust.

Masterpact NW devices with corrosion protection have successfully passed the tests defined by the following standards for extreme atmospheric conditions:

- IEC 68-2-42: atmospheres containing sulphur dioxide (SO_2)
- IEC 68-2-43: atmospheres containing hydrogen sulphide (H_2S).

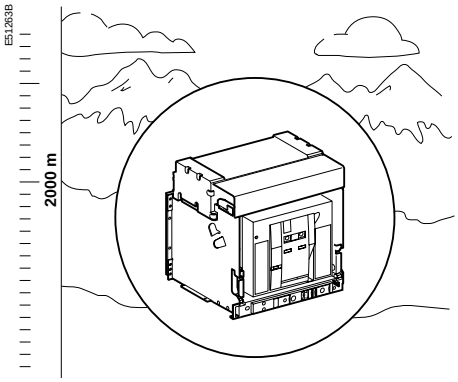


Vibrations

Masterpact NW devices resist electromagnetic or mechanical vibrations.

Tests are carried out in compliance with standard IEC 68-2-6 for the levels required by merchant-marine inspection organisations (Veritas, Lloyd's, etc.):
- 2 to 13.2 Hz: amplitude ±1 mm
- 13.2 to 100 Hz: constant acceleration 0.7 g.

Excessive vibration may cause tripping, breaks in connections or damage to mechanical parts.

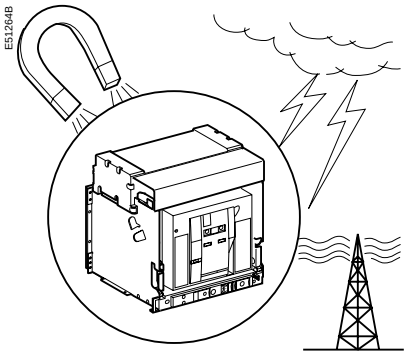


Altitude

Masterpact NW devices are designed for operation at altitudes under 2000 metres.

At altitudes higher than 2000 metres, the modifications in the ambient air (electrical resistance, cooling capacity) lower the following characteristics.

altitude (m)	2000	3000	4000	5000
dielectric resistance voltage (V)	3500	3150	2500	2100
average insulation level (V)	1000	900	700	600
maximum utilisation voltage (V)	690	590	520	460
average thermal current (A) at 40 °C	1 x In	0.99 x In	0.96 x In	0.94 x In



Electromagnetic disturbances

Masterpact NW devices are protected against:
□ overvoltages caused by devices that generate electromagnetic disturbances
□ overvoltages caused by an atmospheric disturbances or by a distribution-system outage (e.g. failure of a lighting system)
□ devices emitting radio waves (radios, walkie-talkies, radar, etc.)
□ electrostatic discharges produced by users.

Masterpact NW devices have successfully passed the electromagnetic-compatibility tests (EMC) defined by the following international standards:
■ IEC 947-2, appendix F
■ IEC 947-2, appendix B (trip units with earth-leakage function).

The above tests guarantee that:
■ no nuisance tripping occurs
■ tripping times are respected.

Cleaning

□ non-metallic parts:
never use solvent, soap or any other cleaning product. Clean with a dry cloth only
□ metal parts:
clean with a dry cloth whenever possible. If solvent, soap or any other cleaning product must be used, make sure that it does not come into contact with non-metallic parts.

Schneider Electric Industries SAS

5, rue Nadar
92506 Rueil-Malmaison Cedex
France
Tel: +33 (0)1 41 29 82 00
Fax: +33 (0)1 47 51 80 20

http://www.schneiderelectric.com

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